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MACKENZIE VALLEY PIPELINE INQUIRY

IN THE MATTER OF AN APPLICATION BY CANADIAN ARCTIC GAS PIPELINE LIMITED FOR A RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS CROWN LANDS WITHIN THE YUKON TERRITORY AND THE NORTHWEST TERRITORIES FOR THE PURPOSE OF THE PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION, OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Yellowknife, N.W.T.

May 22, 1975.

PROCEEDINGS AT INQUIRY

VOLUME 43

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APPEARANCES:

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Mr. Pierre Genest, Q.C. Mr. Jack Marshall, Mr. Darryl Carter, and Mr. John Steeves	for Canadian Arctic Gas Pipeline Limited;
Mr. Reginald Gibbs, Q.C. Mr. Alan Hollingworth	for Foothills Pipelines Ltd.;
Mr. Russell Anthony, Prof. Alastair Lucas	for Canadian Arctic Resources Committee;
Mr. Glen W. Bell and Mr. Gerry Sutton	for Northwest Territories Indian Brotherhood and Metis Association of the Northwest Territories;
Mr. John U. Bayly	for Inuit Tapirisat of Canada and the Committee for Original Peoples' Entitlement;
Mr. Ron Veale and Mr. Allen Lueck	for Yukon Native Brotherhood;
Mr. Carson H. Templeton	for Environment Protection Board;
Mr. David Reesor	for Northwest Territories Association of Municipalities
Mr. Murray Sigler	for Northwest Territories Chamber of Commerce

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Yellowknife, N.W.T.

May 22, 1975.

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GENEST: Mr. Commissioner, after the adjournment yesterday we had in mind your remarks at the close of the hearing with reference to estimates of the number of construction workers involved on the looping project, and by reason of the lack of suitable evening entertainment in Yellowknife, Mr. Williams didn't take out his old envelope, he took out a pad of paper and some of the materials, and has what he considers, with margins of error because of the lack of detailed study, would be some estimates that might be of use to the Inquiry, and I wonder if it would be useful just to put him on now to give those while the subject is fresh in our minds, it might be useful to other counsel, to have that information.

THE COMMISSIONER: Yes, certainly.

GUY LESLIE WILLIAMS, resumed:

DIRECT EXAMINATION BY MR. GENEST (CONTINUED);

Q Mr. Williams?

A Mr. Commissioner, before discussing manpower requirements for looping, I thought I'd try to clarify a possible misunderstanding that may have taken place during the construction panel testimony. The view graph that Mr. Dau had on the screen --and I have a copy here -- depicts the peak manpower requirement in the second construction season

of approximately 8,700 workers was for the entire system. During the second construction season when there are a total of nine spreads working, six of those are north of 60 degrees north latitude, and three are south. So on a straight proportion basis that would put about 5,800 or 6,000 workers in the Yukon, a maximum of 6,000 workers in the Yukon or Northwest Territories in the peak season.

Insofar as the Northwest and Yukon Territories are concerned, with respect to looping of course, the looping as discussed by Mr. Horte would take place between the Travaillant Lake junction and the 60th Parallel. The distance between those two points is about 695 miles. There are 15 compressor stations at an average spacing of about 46 miles. If we assume that one-third of the distance between stations, or about 15 1/3 miles of pipe would be installed in each looping season, as suggested by Mr. Horte yesterday, then we could consider two cases.

Case 1, assume that one construction spread of about 800 workers can install three looped sections, or 46 miles per season. This would be in the Northwest Territories then, a total spread requirement in any one season of five, and approximate peak manpower requirement of 4,000.

Case 2, we could assume that one construction spread of again about 800 workers could install four looped sections, or 63 miles. This would make a total spread requirement of four, with a total manpower peak requirement of about 3,200.

By comparison, the construction plan as filed in the application in this area, one spread is required to install between 75 and 81 miles of pipe per season.

I have quickly checked the station layout drawings as filed in the application, and you may recall that the gravel pads at the site are of sufficient size to accommodate additional horsepower installation at a later date. This would probably not be in at the time of the looping program, and it appears to me, with a quick check, that there is sufficient space on -- there would be sufficient space on the existing compressor station pads to house an 800-man camp, without hauling in additional borrow material.

Without the benefit of a detailed study I would guess that this is what would happen in a looping program, the construction camps would be located at the compressor stations similarly as they are in the initial program and in the case one situation as cited the camp would have to be moved twice in a looping season. In the case three, three moves would be required in a looping season and if the Mackenzie Highway was not constructed, then a snow road would be required along almost all of the right-of-way.

THE COMMISSIONER: Thank you Mr. Williams. I suggest, Mr. Williams, stand down and you carry on with Mr. Horte.

(WITNESS ASIDE)

MR. GENEST: Yes, sir.

THE COMMISSIONER: But if --

MR. GENEST: He will be here --

THE COMMISSIONER: If Mr. Williams is here for the rest of the week then counsel might if they wish at some appropriate stage to cross-examine him.

MR. GENEST: He will be here, sir. I detected snickers from the other end of the room when Mr. Williams said he wanted to correct a misunderstanding, but I do think the record is clear that the graphs showing the peak number of people were the whole project.

MR. SCOTT: There weren't any snickers intended. I just thought that this was

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going to be a comment on the press reports of Mr. Brackett's testimony in Washington. I misunderstood the nature of the evidence that was going to be adduced.

MR. GENEST: Right.

THE COMMISSIONER: You cannot win, Mr. Genest.

MR. GENEST: I know I can't. I will keep trying.

VERNON L. HORTE, resumed.

DIRECT EXAMINATION BY MR. GENEST (CONTINUED):

Q Mr. Horte, we left of yesterday on the subject of looping and I would like to ask you now, sir, to move on to the topic of the reasoning behind the selection of the route in the Mackenzie Valley.

A Yes, sir. Since 1969 consideration has been given to alternative routes for a pipeline from the north. Evidence has already been given for the route selected through Alaska. When consideration was first given for selecting the route in Canada, much of that was given to the route on the west side of the Mackenzie River. The reason for this was that the potential for discoveries of gas along the west side of the river appeared to be greater than on the east and it was a more direct route. a decision was made to locate the route down the east side of the Mackenzie River however, for several reasons.

First, gas discoveries in the Mackenzie Delta accelerated and disappointing results

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were obtained on the areas south of the Mackenzie Delta on the west side of the Mackenzie River.

Secondly, a decision to locate the Mackenzie Highway on the east side of the Mackenzie River was made. While the existence of the Mackenzie Highway is not essential to the construction of our project, it was felt desirable -- it was felt desirable to utilize this where possible.

Thirdly, our studies show that a route along the east side would avoid terrain difficulties which would have been encountered because of many difficult river crossings associated withany west side routing.

Q Mr. Horte, could you now deal with the question of the socio- economic considerations that went into route selection as far as Arctic Gas management was concerned?

A Yes, sir. During the first phase of this hearing, considerable cross-examination has been addressed to the question of what socio-economic input there was into the process of route selection. This cannot be discussed in specific terms without an understanding of the basic approach of Canadian Arctic Gas to socio-economic matters.

The first point that should be made is that in our view the development of a pipeline in the Mackenzie Valley region is of substantial more consequence than the specific mile by mile routing of the pipeline. The existence of

the pipeline makes possible the associated hydrocarbon developments, construction and operating jobs and the creation of a more stable economic base. By the same token, many of the potentially detrimental effects come about because of the existence of the pipeline.

The second point relates to the sequence of planning and decision-making. Because of the above fact, engineering and environmental considerations were paramount in route selection, design and construction planning. The extent to which there are socio-economic benefits and a minimization of detrimental effects, is very much dependent on the efficient construction, with a minimum of environmental disruption, of an economically viable pipeline system that can be operated in a safe and efficient manner. The fact is that engineering and environmental considerations are closely inter-related and can for the most part be reduced to hard (in the sense of quantifiable) technical inputs to decision-making. Socio-economic considerations, on the other hand, are of necessity more difficult to deal with because they deal with human perceptives and subjective value judgments. In particular, they are heavily weighted by attitudes, which are in a constant state of flux and change. Further, many of the socio-economic considerations with respect to the maximization of benefits or the minimization of detrimental effects, are best dealt with through the formulation of appropriate company policies -- a subject that will form a part of the testimony we will be presenting in Phase 4.

Therefore, it is our judgment that the engineering and environmental considerations had to take paramount position in the basic route selection, design and construction planning activities. Once the plans were drawn, they were subjected to

socio-economic scrutiny with the object of identifying the potential socio-economic consequences of the location of pipeline facilities and of giving us the opportunity of assessing whether there were adverse effects which could be avoided.

With what I have just said as background, let me deal with some specifics relevant to the question of routing.

Notwithstanding the statement made above about the existence of a pipeline as opposed to its specific routing, we did take socio-economic considerations into account in routing near communities and in the location of above-ground facilities for both construction and operations.

After considering the input of our socio-economic consultants, we came to the conclusion that there was a judgmental trade-off involved in location decisions related to communities. On the one hand, locating facilities and activities at a great distance from communities minimizes the chance of adverse disruption or impacts on those communities. On the other hand, the greater the distance the facilities and activities are from any given community, the lesser the chance for beneficial effects in the form of employment, infrastructure improvements, etc. Having regard to these trade-offs it was our judgment that we should locate facilities and construction activities at a reasonable distance from the communities where practical.

As has been indicated in

previous testimony, our socio-economic consultants did investigate the location and extent of trap lines, traditional hunting and fishing areas. It was clear that to avoid all such areas would be an impossibility. Therefore, it was the applicant's judgment that efficient construction of a pipeline with a minimum of environmental disruption was the most practical way of minimizing interference with these traditional pursuits.

Our socio-economic consultants were asked to comment on the proposed Fort Simpson route change. The judgment of those consultants was that the route change would have little bearing in terms of the socio-economic impact on Fort Simpson. The judgment of our engineers was that the route change also marginally improved the economics of bringing gas to Fort Simpson.

Q Mr. Horte, could we then deal with the question of the interaction of specialists, consultants and the management of Arctic Gas in connection with the planning and design of this pipeline project?

A Yes sir.

Following the merger of the Northwest project and Gas Arctic systems in 1972, an organization was assembled in Arctic Gas to manage the orderly development of research and study programs to determine the feasibility of constructing a pipeline from the Mackenzie Delta and Prudhoe Bay producing areas. This merger has led, as well, to the formation of Northern Engineering Services which then served as

the principal consultant to Arctic Gas with particular reference to such matters as: Location, design, geotechnical, construction, and environmental aspects of the project. Northern Engineering Services in turn retained various sub-consultants such as:

Dr. Mollard on terrain analysis;

Mr. Holmberg on metallurgical aspects;

Doctors Morgenstern and Cooper in geotechnical and hydrological areas;

C.N.-C.P. in logistics;

L.G.L. on birds;

Aquatic Environments on fish; and

Renewable Resources on mammals.

These consultants, together with many others, including Alaskan consultants, assisted N.E.S. in carrying out its assignment. This work was done in liaison with the staff of Arctic Gas, based primarily in Calgary and Anchorage under the overall supervision and direction of Arctic Gas management.

To illustrate, environmental work was directed in the following way:

(a) Proposals for programs were advanced by the consultants, examined by N.E.S. and submitted to CAGSL.

(b) In addition, Arctic Gas in many cases initiated requests for proposals for specific studies.

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(C.) The director of environmental studies at Arctic Gas (Mr. Alex Hemstock), his staff and the environmental sub-committee, reviewed proposals and recommended their approval to management. In reaching their decisions on various programmes and studies, Canadian Arctic Gas and Northern Engineering Services also had the help of Dr. Frank Banfield, an eminent wildlife biologist and environmentalist and the members of the Environmental Protection Board, whose activities were funded by the Project.

(D.) The findings of our environmental advisors were communicated on an ongoing basis to our design engineers.

In addition, reports of environmental research were then submitted to the environmentalists, by the environmentalists to an editorial committee for review as to technical content and scientific method and in due course were published as part of the Arctic Gas biological report series.

The work of NES and its consultants in those disciplines for which it had responsibilities was, generally speaking, handled in a similar manner, involving liaison with the Arctic Gas technical staff, sponsor sub-committees in each major area and the overall direction of management.

There were, of course, many areas that were not assigned to NES and these have been handled either directly by Arctic Gas or through consultants directly to it. Examples of this are:

(a) gas supply, reserves and deliverability, which were dealt with by several consultants to Arctic Gas;

(b) Operations and maintenance which was handled internally by Arctic Gas;

(c) The Northern Training Programme which is managed by Arctic Gas with placement of trainees being made with companies such as Alberta Gas TrunkLines Limited, TransCanada Pipelines Limited, Gulf Oil, Shell Oil and Imperial.

(d) regional socio-economic impact which has been analyzed by several consultants to Arctic Gas, with Arctic Gas having co-ordinated the various studies, analyzed results and used them to develop appropriate programmes and policies.

From the outset, Arctic Gas management has made a substantial effort to ensure that environmental and socio-economic considerations have been adequately studied and to incorporate the findings of such studies in the planning of the project.

MR. GENEST: Can we deal then more specifically, Mr. HOrte, with the construction and engineering consultants and their role as you see it in this project?

A Yes, this has really to deal with the major consultants in the project and in this connection Northern Engineering Services Limited has been the prime consultant to Arctic Gas in carrying out the environmental work, the engineering design and

construction plan proposed to the regulatory authorities by Arctic Gas. This has all been done under the direct supervision of the Arctic Gas staff. MOre recently we have retained the services of Northcan Engineering and Management limited for the purpose of doing the detailed work required to implement the construction plan which I will now more fully describe.

I should state at the outset that Northcan is in the very preliminary stages of this work. I should also state that in most projects the detailed work being done by Northcan now would not be done until approvals for the project had been obtained. Having regard to this project, however, it was decided that if this work were not done at this time, during the approval process the result would be significant delays in the ultimate completion of the project. This work involves further detailed assessment of such items as the following:

1) The labour requirements for the project, the availability of the skills and other personnel required, what additional training programmes if any may be required to obtain the necessary personnel, and the necessary labour agreements that will have to be entered into and in those agreements the steps that will have to be taken to make sure that due regard is had in those labour agreements to the use of northerns and particularly the Native people of the NOrth.

2) Assessment of the

availability of equipment and the best method of obtaining this. Such questions as whether this equipment should be obtained directly by the contractors or whether it should be obtained by Arctic Gas, the timing for the placing of these orders and the expedition of this equipment to the job sites.

3) the availability of contractors and recommendations as to the form of contracts that should be entered into in order to assure that complete control by Arctic Gas -- in order to assure complete control by Arctic Gas, expeditious construction of the project and at the lowest feasible cost having regard to all the circumstances.

4) The further detailed logistical planning of the project so as to assure the efficient movement of all materials to the job site with the least possible disruption and in the most efficient manner.

5. The control mechanisms in connection with all of the above so that on a systems basis the management of Arctic Gas will, at all times, during construction have available to it the status of the project, the alternatives available in the event that there are problems in any particular area, the cost control aspects, etc., all of which will involve a very fine-tuned system control mechanism for providing this information, so essential to overall control of the project. I think when one considers the size of the project, the area through which it will be constructed, and the logistics involved, it can be readily seen that this detailed planning now being undertaken by Northcan under our supervision is absolutely essential.

It is also essential that procedures be set up to assure that the environmental and sociological parameters involved in the construction are adhered to and that the pipeline as constructed meets all the design criteria. In other words, it is essential in controlling the project to make sure that what is constructed is what has been designed and that any on-the-spot changes in design not be carried out by those constructing the project, but only changed by the design engineers charged with the responsibility of assuring that the pipeline will be a safe and efficient operating pipeline system.

The role of overseeing construction or managing the construction aspect of the project itself is a role which fundamentally means

supervising and controlling the actual contractors who are employed to construct the facilities so as to assure that the construction techniques and the progress of construction is carried out as planned. This role, of course, will obviously involve the logistical support for such construction to make sure that men, equipment and materials are available at the jobsite to avoid any costly slowdown which might otherwise take place.

Differences between those charged with the responsibility for design and those charged with the responsibility for construction will be resolved by Arctic Gas management. In other words, we will supervise every aspect of the operation.

The purpose in retaining companies such as N.E.S. for engineering design and companies such as Northcan for construction management is simply one of using people with these skills in these areas from outside organizations rather than hiring the very large staff that would be required if Arctic Gas were to undertake within its own organization these same functions. In addition, these two organizations can draw on a skilled pool of several thousand people employed by their participant members.

Northern Engineering Services has an arrangement to stay with the project for the purpose of assuring us a proper engineering and environmental design, a proper inspection during construction to assure that design parameters are met and the ultimate commissioning of those facilities for

operating purposes.

Q Now, Mr. Horte, that pretty well concludes my cross-examination -- that is a misnomer. I wanted to ask, though, a question in relation to the cross-delta route alternative. The Commissioner enquired some days ago what was the status of that alternative in the decision-making process and perhaps you could tell us a few words about that.

A Well, the status of that is, and I think my understanding is that it's been testified to some extent, at this point from a management standpoint we are satisfied that from an engineering design, construction and operational standpoint we think it is a sound route, that is the cross-delta route. With respect to the environmental aspects of that possible routing, while we think it may not have any large adverse impacts or impacts worse than or different than the prime route, we are really not in a position to make a full assessment of that, and additional work is being carried out this summer. We believe that by the end of this summer with the work being undertaken this summer in that area we will have a good handle on the environmental impacts for that routing, and we'll be submitting that evidence to you, sir.

MR. GENEST: That concludes my examination in chief, Mr. Commissioner.

THE COMMISSIONER: Thank you.

MR. GIBBS: The logistics will take a few minutes.

CROSS-EXAMINATION BY MR. GIBBS:

Q Good morning, Mr. Horte.

A Good morning, Mr. Gibbs.

Q Can we start, sir, with the company's structure that you began your evidence with.

A Yes sir.

Q There are really four organizations to consider, are there not? There is Canadian Arctic Gas Study Limited, Alaskan Arctic Gas Study, Canadian Arctic Gas Pipelines Limited, and Alaskan Arctic Gas Company.

A Yes sir.

Q And Canadian Arctic Gas Study is the study group for the Canadian portion, and Alaskan Arctic Gas Study is the study group for the Alaskan portion.

A Yes. One small point, Mr. Gibbs. The Northwest project, Gas Arctic Study Group is the group that -- it's under that study group that studies in both Alaska and Canada are being carried out. Those studies are being undertaken by a company called Canadian Arctic Gas Study Limited, and a company called Alaska Arctic Gas Study Limited. or Alaska Arctic Gas Study.

Q Mr. Horte, you are an officer of each of those four organizations, are you not?

A Yes sir.

Q And Mr. Brackett is also an officer of each of those four organizations.

A I think that is correct.

Q Well, you know whether it's correct or not, don't you?

A Well, I am just trying to think of the four, that's all. I believe that's correct, sir.

Q And with respect to the study groups, are the same sponsor companies sponsors of the Canadian Study Group as of the Alaskan Study Group?

A Yes sir.

Q And those sponsor companies are members of the study groups but not of the Pipeline Company.

A That is correct, although they, at this stage, they control the activities to the extent there are activities, of the respective pipeline companies through a nominee agreement.

Q Currently those sponsor companies are 18 in number, as listed on page 5 of your prepared evidence.

A That is correct.

Q Of whom, if one uses the sense of control and direction, only five are Canadian companies.

A Let me just check that, sir. That's six.

Q Well, it's TransCanada Pipelines Limited.

A Yes.

Q Canada Development Corporation.

A Well, there's Alberta Natural Gas.

Q I'm coming back to that one. Canada Development Corporation.

A Yes.

Q Consumers Gas Company.

A Yes.

Q Union Gas Company.

A Yes.

Q Northern & Central Gas Corporation Limited.

A Yes.

Q And is it your evidence that Alberta Natural Gas Limited is a Canadian company in the sense of control and direction?

A My understanding is that it's 55% -- the ownership of the company is 55% Canadian and 45% owned by I think it's either P.G.T. or Pacific Gas & Electric.

Q Yes, and you know that the direction of Alberta Natural Gas Company Limited flows from either Pacific Gas & Electric in San Francisco, or Pacific Gas Transmission in San Fransico?

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A Well, certainly they are a big part of it. There is another 55% that is represented by Canadian stockholders.

Q Now, sir, the broad policy decisions flow from the Management Committee which has one member from each sponsor company, is that correct?

A That is correct.

Q And you have told us on pages 4 and 5 of your prepared evidence that voting is by groups with a two-thirds majority vote in the affirmative required from each group.

A Yes.

Q And then you say on page 5 that this means that no one group dominates the Management Committee.

A That is correct.

Q But that isn't really so, is it, Mr. HOrte, because that kind of voting means that one group can dominate by way of veto of any affirmative proposal.

A Well, it also means the converse of that no one group can proceed or go ahead with a specific concept that they may have without the approval of the other groups.

Q Yes, sir, but let's come back to the veto power and for example, looking at your list on page 5 any one of any group of three of those producers, all of whom are foreign corporations can veto any affirmative proposal in Management Committee,

A That is correct and the Canadian non-producer group could veto any proposal that they disagreed with made by the group you just referred to.

Q And you and I, sir, are aware of occasions where that producer group has done exactly that, are we not?

A There have been occasions where that has happened, at a particular Management Committee meeting and I am sure you are referring to meetings that took place during the period that Alberta Gas Trunk Line was a member of that Management Committee meeting, but I can say without any hesitation that in the final analysis all of those, where there were differences we have been able very effectively to handle those differences and come up with what we think, and everybody agrees, is a very sound plan. You are bound to always get differences in a group of this size, but I think it is rather remarkable, frankly, that we have been able to resolve these differences.

Q And in the one incident that I spoke of the resolution only came because of withdrawals of some of the parties from the Management Committee, from the Consortium.

A I do not know what you are referring to.

Q All right, sir.

Now, financing, Mr. Horte, comes from the sponsor companies. Is that correct?

A The financing of the study? Studies?

Q Yes, sir.

A Yes, they put up equally the funds required for the studies, these hearings, etc., that are taking place.

Q Everything that --

A Everything that has been done to date.

Q What the study group does and the pipeline company does is financed by the sponsor companies?

A Yes, sir.

Q And each up to this date have put up about $3 million?

A That would be approximately right, yes, sir.

Q and that includes those who are still sponsors as well as those who have dropped out?

A Yes.

Well -- not all of those who have dropped out put up that much money because it is dependent upon what time period that they actually dropped out. They just picked up their share of the costs at the point that they dropped out and the costs are continuing and the remaining companies continue to pick up a new share of the costs.

MR. SCOTT: Mr. Commissioner, is there any chance that Mr. HOrte's microphone could

be turned up just a touch.

A I can pull it a little closer.

MR. SCOTT: Thank you.

MR. GIBBS:

Q And the money advanced by the sponsor companies for financing goes initially to the study group, does it not?

A Yes.

Q And so in effect Canadian Arctic Gas Pipeline Limited or Canadian Arctic Gas Study Limited are really dispersing agents of that money on behalf of the sponsor companies?

A Well, that is one of the functions we carry out in addition to carrying out all the studies themselves, we are responsible for the studies and the payment to parties who have undertaken the work in connection with those studies. Certainly we do the accounting.

Q Yes, the point that I am trying to make --

A I am not sure what your point is.

Q That Canadian Arctic Gas Pipeline or Canadian Arctic Gas Study Limited has no earned income. All of its revenue comes through those --

A That is correct.

Q And the basis of the Consortium membership or the study group membership, sir,

is that each member puts up his proportionate share of the costs which dependent on numbers about 4% or 5% and gets full right to all the information and data generated through the expenditure of all of the funds.

A He gets full right to all information obtained during the course of his belonging to the study group, yes.

Q To make use of as he sees fit.

A Obviously, if he has the right to it I guess he can use it as he sees fit.

Q And that applies to those who have dropped out of the study group as well as those who are still members?

A I think that follows.

Q Yes.

A And so it also follows that all of the information developed to the date of withdrawal, including, for example, all of the environmental, sociological and geotechnical evidence and data which has been presented to this hearing and will be presented at other hearings is available to be used by any member of the study group?

A Not all of it, sir, that information that was available during the time that participant was involved in the project. Information subsequently developed -- or research subsequently done is something that is not available

to them other than availability through public hearings. I guess anything that is on the record in a public hearing is available to anyone.

Q And in the case of the Alberta Gas Trunk Line Company Limited, everything that was generated up until September16, 1974, is as equally their property as the property of any other sponsor company?

A Yes. sir.

MR. GENEST: Mr. Commissioner, is my friend trying to build up a defense for a breach of copyright suit?

MR. GIBBS: No sir. Although we were threatened with that nothing seems to have happened.

MR. GENEST: I don't know where this is leading us.

MR. GIBBS: I was following up, sir, the background of the corporate setup that Mr. Horte has talked about at some length.

Q Now Mr. Horte, of those sponsor companies listed on page 5, or of any of the sponsor companies, they have a right, each has a right to withdraw at any time.

A That is correct.

Q And in fact, two withdrew just last week.

A Last week or the week before, yes.

Q Those being Canadian Utilities Limited --

A Yes.

Q -- and Numac Oil & Gas and Sunoco?

A Yes.

Q Canadian Utilities Limited being the company which distributes natural gas to Calgary and Edmonton and smaller communities in Alberta.

A Yes, they are the companies that perform that service in Calgary and Edmonton.

Q Now, sir, on page 6 of your prepared evidence, you say at the beginning of the full paragraph starting in the middle of the page:

"The members of the consortium have an influence

in the decision-making process of the study group in another way,"

and then you refer to the various committees.

A Yes.

Q Does each member of the -- does each sponsor company have a member on each committee?

A I would have to check that. I don't think on every committee. Let's put it this way, each member has the right to put a member on each one of those committees. I would have to check this, but I don't think in every instance that every company has a member on each committee or sub-committee. They certainly have the right to do so or to send somebody to participate in those committee meetings.

Q Now, sir, there are other ways in which the members of the consortium influence the decision-making process, are there not? I suggest two to you: (1) is by way of equity ownership which will be developed in the pipeline company.

A I'm not sure I follow your question.

Q Well, clearly the equity ownership, whatever that becomes, will lead to the influence of those who hold the largest equity ownership.

A Yes.

Q And the second one is through membership of some of your sponsor companies

in other groups connected with the pipeline project.

MR. GENEST: I don't follow that question, Mr. Commissioner.

A I don't either.

MR. GIBBS: Does the witness follow it?

A No, I don't.

Q Mr. Horte,has there been any Management Committee decision yet on how the equity in your project will be divided?

A I guess the big trick in the group is not who wants what part of it, but how much can be obtained from the various sponsor companies, and on the Canadian end of the equity ownership, as we stated from the beginning, we are certainly hopeful that the Canadian ownership of the project will exceed 50%. What the breakdown of the ownership on the U.S. or the remaining ownership,presumably/which will come from the U.S. or other sources, will be, I don't know; but it will obviously be coming, I would think, from those companies at least partially that have a vital interest in the project and have acquired gas supplies, or those that will be shipping gas, if you like, through the project.

Q But, sir, has any management decision yet been made on the allocation of equity?

A No sir.

Q As I understand it from Mr. Brackett's evidence before the Federal Power

Commission, one of the methods that has been discussed is to allocate equity on the basis of throughput.

A I think there are all sorts of concepts or ideas.

MR. GENEST: Excuse me, Mr. Horte. Mr. Chairman, if Mr. Gibbs is going to put to the witness testimony in other places, it seems to me he ought to quote it and give us the reference. I don't think that he should -- or the witness should have to answer his interpretation of what a witness has said. I think the statement should be put, in my submission.

MR. GIBBS: All right, sir.

Q Volume 5 of the Official Stenographer's Report before the Federal Power Commission, pages 829 to 830, 829 and 830.

A Have you got a copy of that?

THE COMMISSIONER: Just -- Mr. Brackett, I know who Mr. Brackett is but what is his official position now with Canadian Arctic Gas Pipeline, for instance, or does he have a position with them?

A Yes, he still holds the position of vice-president of corporate affairs which was his original position with Canadian Arctic Gas. He has, however, also taken on the vice-chairmanship of the Alaska Arctic Gas Company. He is now located in Washington, and really his duties with respect to Canadian Arctic Gas are not the same direct line of duties that he previously had while he was

located in Canada; but certainly he attends all our Management Committee meetings, etc., and has a great deal of input into the Canadian Arctic Gas aspects, we're always, sir, in a project like this you have to look at the situation both in Canada and the U.S. because it is an international project. But he doesn't have the same direct line of responsibility in the Canadian Arctic Gas project that he previously had.

Q Well, when he gave evidence before the Federal Power Commission he was speaking as an official of Canadian Arctic Gas Pipeline Limited, as well as an official of Alaskan Arctic Gas?

A He could well have been, sir.

MR. GENEST: I think the situation, sir, is that the applicant there is Alaskan Arctic Gas, but for all practical purposes I think it is-- What Mr. Brackett said is a statement that we can't separate ourselves from as Canadian Arctic Gas.

A Right.

MR. GIBBS: I think perhaps a more sensible sequence begins on page 827 of the transcript, sir. Mr. Brackett is being cross-examined by Mr. Connolly of counsel for El Paso-Alaskan Gas, and he says to Mr. Brackett:

> "Would you expect North Slope producers to take any equity position in the two Arctic Gas Companies?"

Answer:

"I really have no expectation about that at this regard at this point in time."

"Well, has there been any discussion with any of the producers who were members of your consortium that they would take an equity position?"

"Yes sir."

"What statements did they make as to whether or not they would?"

"I believe the gist of the statements that I can recall are that they prefer to be in the producing business rather than in the pipeline business."

"So that you do not now have a present expectation that the producers would acquire any equity?"

"I do not have an expectation that they will or that they won't."

"But you don't have a present expectation that they will. Your latest intelligence is that they do not want to, is that a fair summary of your testimony?"

Then, sir, there's a dispute between counsel, which is quite frequent on this transcript. And the questioning goes on:

"By North Slope producers?"

Answer:

"The ones that I discussed it with, I think, have expressed an indication they would

prefer not to."

"And who would they be?"

"I believe Exxon and SOHIO."

"Do you expect any of the companies who are partners in the northern border project to purchase any equity?"

"Yes sir."

"How much equity do you expect that they will purchase?"

Answer:

"I'm sorry, let's be more precise. Equity in what?"

Question:

"In the Arctic Gas Company, Alaskan Arctic Gas, and Canadian Arctic Gas."

Answer:

"Yes, I don't know how much."

Question:

"Have there been discussions with any of those partners of northern border, as with management of Arctic Gas as to what participation in equity each or any of them would take?"

Answer:

"There have been discussions about the possibility of them investing, some of them. We have had such discussions."

"Have you been present at such discussions?"

"Yes."

Not quantified at this point.

"Have you been present at such discussions?"

"Yes."

"Has the subject of their equity participation been ratioed to their volume of throughput been discussed?"

"Yes, as one possibility for determination of what they might desire in terms of equity."

Now, sir, I think that presents to my friend the evidence that has been discussed which I asked Mr. Horte to confirm, and you can confirm it?

A Yes, I would confirm that testimony.

Q And have other methods of allocating equity been discussed, Mr. Horte?

A Well, maybe it would be best for me to describe the approach being taken with respect to equity. I think it would be helpful in trying to give you a better understanding as to how this may eventually take place. First and foremost, the objective of the company is to obtain absolutely maximum Canadian participation. There is no doubt in my mind that if Canadians, Canadian companies or the Canadian public were able to, and in fact wanted to, own all of the Canadian facility, that you would find no objection from the U.S. companies. The situation is a question of just how much equity you can raise in Canada for the project. It is our belief that the amount of equity that can be raised will exceed 50% of that required. So the first job -- the first approach to the situation is to make sure that maximum

Canadian participation is involved.

What is left then, if you like, of additional equity that will be required will be the amount of money that we'll be attempting to obtain from the U.S. participant or other sources. Now how that's going to be split up between those companies, I don't know. There are many ways you could do it. You could do it on the basis of they may decide -- it's not going to be our decision -- they're going to decide how much money they want to put up and how they want to put it up. It may well be allocated on the basis of throughput. It's easy for me to conceive that one participant would say, "Well I don't want to put up any more than my share of the throughput. He's got twice as much gas coming out of Alaska as I have, let him put up twice as much money as me."

I don't know the answer to that. We don't have the answer to that. These are discussions that are taking place and will be taking place until we arrive at a solution. So there is no answer at this point to your question. There will be some form of allocation, I don't know what that method will be.

Except to say that it will be allocated among the U.S. participants after Canadians have taken what piece of this thing that they are able or want to handle.

Q And do your studies, sir, indicate to you what piece Canadians are able to handle?

A We think that we are going to be able to raise in excess of 50% in Canada.

Q And 50% of the equity would be how much money?

A Would be $700 million.

Q And, sir, has there ever been in Canadian history an equity issue of that amount?

A I do not think in one lump sum, but you are also looking at some large companies and well, their indications -- to give you an indication, you probably read the announcements in the press, TransCanada Pipelines on a conditional basis has advised us that they will be looking at investing $200 million in the project. Canadian Development Corporation, $100 million; Union Gas I think has announced an investment of $50 million. Similarly, Consumers Gas. We do not have the answers from the other participants at this point.

Q And, sir, not one of those who have so advised you have done so unconditionally, have they?

A Well, I don't think that anybody in their right mind would.

Q Every -- I wonder --

A Give you an unconditional guarantee that they were going to invest that until they saw the terms and conditions of the permits, the basis upon which they would be permitted to earn on that equity, what the market conditions at the time, etc., would be. They are saying that fundamentally as we see this project and as it is conceived and if it is approved on this basis, this is the kind of money that we would be looking at investing in your company. That is really all they have done at this point in time.

Q Yes,and in the case of all of those except Canada Development Corporation, subject to the right to put that money into the rate base.

A Yes, that is a condition that the--

Q And subject to their ability to raise those kinds of funds on their own borrowing power and authority?

A Obviously.

Q Yes, subject --

THE COMMISSIONER: Excuse me, Mr. Gibbs, what was that first condition you cited?

MR. GIBBS: Subject to the -- other than Canada Development Corporation -- subject to their right to put the amount of money put up for

equity into the rate base of the company.

THE COMMISSIONER: Would you explain what you mean by that.

MR. GIBBS: Yes, sir. If it goes into the rate base of the company it is treated the same as a piece of pipe would be treated and they can earn a return on that as part of their cost of service. It does not have to be put up by the shareholders. It is paid for by the customers of the utility companies, that is correct, Mr. Horte?

A Well, it has to be put up.

Q No, but my explanation to --

A Well, fundamentally, except the last part of it. The money has to be put up by the company and it is just as though you were going out -- let's take the case of TransCanada that I referred to. They were to invest $200 million and they were able to rate base that. that $200 million investment on a rate basing purposes that they are suggesting would be considered just as though they had added $ 200 million worth of facilities to their own pipeline.

Q Yes.

A And they would be permitted to increase or to charge rates to the customers for gas then being delivered to their customers which amortized that investment which paid the interest on that investment and a return to

equity on that investment just as though it were a part of their existing facility.

Q Yes, sir, I am correct that in the end when all that process is done, the user of the gas has repaid the company -- or the shareholder for all of the money put up plus the interest on it.

A This is true in any public utility.

Q I am not interested --

A Public utilities are based on the rate basing concept and ultimately the costs for all facilities are really borne by the user of the commodity.

Q Yes, sir, I wasn't intending to sound accusatory. I was just trying to elicit an explanation for the Commissioner.

A Yes.

THE COMMISSIONER: Well, just so that I understand this, let us suppose that you were to receive the right-of-way from the Minister of Indian Affairs and Northern Development and then a certificate from the National Energy Board, you would at that stage seek these unconditional commitments from these companies including TransCanada?

A Yes.

Q And TransCanada would then itself seek approval to pass on to its customers the investment it had made in ARctic Gas, is that what happens?

A That is correct and of course their customers likewise would benefit from the revenues gained by TransCanada as an investor in that company. That would be accredited against that cost.

Q By revenues you mean dividends, so you?

A Yes, sir.

Q But would the TransCanada, would TransCanada's customers be paying higher rates to support this investment during the period of construction of the Arctic Gas line?

A Yes, they would under that concept.

MR. GIBBS:

Q And of course the same applies to the three Ontario utility companies you mentioned, only they must go to the Ontario Energy Board for that approval?

A That is correct.

Q Now, sir, if your expectation turns out that these conditional commitments become firm you still will be looking to the Canadian public for something in the range of $300 million in equity participation?

A I think as an outside maximum I think that's probably higher than we will be looking for.

Q And that is larger than all equity offerings on the Canadian market, I think

I am right, sir, in the history of equity offerings, is that within your knowledge?

A You know, I cannot answer that question.

Q In any one year?

A I don't even know whether it has to be raised on in one year. It might be spread over three or four.

Q Mr. Horte, who will make the final decision on equity allocation when it is made?

A Well, I don't know that I can expand upon what I have already said with respect to how --

Q Well, would it be the Management Committee of representatives of the sponsor companies?

A It will be the individual companies who are investing, not the Management Committee. The Mangement Committee has nothing to do with the -- any allocation of investment in the project,and I am sure that you know that, because you have read the study group agreement.

Q Well, sir, I had the impression that you anticipated more subscriptions than there would be equity.

A I am sorry, would you repeat question?

Q I was under the impression that
/when you spoke of the Northern BOrder group that you

that
anticipated/more equity would be requested than there was to issue to the Northern Border group.

MR. GENEST: Is that a question, Mr. Gibbs, or is that a statement?

MR. GIBBS: Yes --

A That I expected -- sorry, would;you repeat that again, I honestly do not understand your question.

Q Do you understand th e Northern BOrder group?

A Yes.

THE COMMISSIONER: Well, just stopping there, what is the Northern Border group?

MR. GIBBS:

Q All right, sir. Mr. HOrte, would you tell the Commissioner, what is the Northern Border group.

A Well, it is the companies that are sponsoring the proposed pipeline which would connect at the Saskatchewan/U.S. border to build a pipeline from that point across the northern states down into the mid-west area of the U.S. and on east from there to the Columbia Gas system, and the companies that are involved in that --

Q If you look at page 5 of the prepared evidence, sir. Perhaps, Mr. Horte, you can tell the Commissioner which of those U.S. non-producer groups are members of the Northern Border group.

A Yes, I will.

Well, Northern Natural Gas Michigan Wisconsin, Natural Gas Pipeline, Texas Eastern, Panhandle Eastern, and Columbia GAs Transmission. So that would make a total of one, two, three, four, five, six companies.

Q All except Pacific Lighting?

A Yes.

Q And I was under the impression, sir -- maybe I'm wrong -- that you expected that those members, the ones that you have just read, would request or would be prepared to subscribe to perhaps more than 50% of the equity which you expect to be available for them.

A No, I didn't say that. I said that first of all we were going to try and raise more than 50% of the equity in Canada. What was left over will have to be raised either from those participants or through other means. In other words what I'm saying is that I think if they want to see the project there's going to be some onus upon them beyond what we're able to raise in Canada to put up equity funds. I'm saying that I think fundamentally they would like to see their investment as small as possible in the Canadian facilities, but still recognizing that those facilities have to be built if in effect they are going to obtain the gas that they've acquired from the North Slope.

Q So that it's not a question of being on the door trying to get the equity, it's a question more of being compelled to put it up if they want to see the system.

A I think that's a proper categorization.

Q Mr. Horte, none of the present members of the consortium or study group are obliged to subscribe to any equity, are they?

A That is correct.

Q Now, sir, when I suggested to you that there were two ways in which the consortium members influenced the decision-making process, I said one of them was membership in other groups, and I was referring to the Northern Border Group, and that to reiterate, is the group which proposes to build a connecting line from Mouncie, Saskatchewan, south-east into Pennsylvania.

A Yes sir.

Q And all of those members of the Northern Border Group are United States utility distribution companies.

A They are.

Q And so, Mr. Horte, if and when there is a conflict in the Management Committee between the interests of the U.S. customers and Canadian customers, would you not expect the Northern Border Group to exercise their power of veto in favor of the U.S. customers?

A Well, I think that everybody that's involved in this project recognizes that it is an international project, there are Canadian customers that have a vital concern, there are U.S. customers that have a vital concern , and what one really ends up with is a situation where those respective concerns are taken into consideration, always having in mind that there has to be benefits to both nations, if in fact the project is to be accomplished. This is a great levelling factor for both sides. They always have to be aware of the advantages of the

Q And so, Mr. Horte, if and when there is a conflict in the Management Committee between the interests of the U.S. customers and Canadian customers, would you not expect the Northern Border Group to exercise their power of veto in favor of the U.S. customers?

A Well, I think that every-

project in their own country. So this kind of brings people back down to earth. You may want something but you may not be able to get it.

Q But hasn't it worked out, sir, that that voting structure has in fact preferred U.S. customers against Canadian customers in this project?

A That it what?

Q Has created a preference for U.S. customers of gas as against Canadian customers of gas through this project.

A I wouldn't agree with that at all.

Q Good. Well, perhaps we can try an example then.

A O.K.

MR. GENEST: Mr. Commissioner, I wonder if -- again I don't want to cut off Mr. Gibbs -- is this a matter of concern to the Inquiry constituted under this order-in-council? Or is that a matter for the Energy Board?

THE COMMISSIONER: Well, without -- that was going through my mind, but even before I call on Mr. Gibbs, I think there are two things to be considered: One is that all of this was introduced through Mr. Horte's written statement yesterday and today, and I don't think it would be fair just to leave it as it is if someone wants to challenge the assertions made by Mr. Horte in his written statement. Secondly, having read the specific question, one of

the matters that may come up in places like Hay River next week is preference for Canadian users of energy in the north, and any - - it seems to me that any evidence that bears on the likelihood of their receiving a preference ought to be heard.

Now, I guess that means I'm on your side, at this Stage Mr. Gibbs, so perhaps you'd carry on. So you feel free, Mr. Genest, to raise objections.

MR. GENEST: I'll subside for a while in view of your statement, sir.

MR. GIBBS: I don't propose, sir,to go into National Energy Board matters. I realize that what will be dealt with there will be in much more detail, but in this example that I'm going to go through with with Mr. Horte, it is more of a concept.

Q Mr. Horte, the cost of service structure, that is the cost of transporting the gas, the per unit cost --

A Yes sir.

Q -- through the Alaskan Arctic facilities and through the Canadian Arctic Gas Pipeline facilities is based upon what is known as an M.C.F. mile method.

A Yes sir.

Q And in that method in order to determine the cost of transporting one M.C.F. as I understand it -- and perhaps if I'm wrong as we go through it you will correct me -- you multiply the total M.C.F. transported, times the total miles transported to get an M.C.F. mile.

A To get the total M.C.F. miles.

Q Yes.

THE COMMISSIONER: "M" is a thousand.

A Yes.

Q 1,000 cubic feet.

A Yes.

MR. GIBBS: Q And you then derive a total M.C.F. mile.

A Yes sir.

Q And then to determine the M.C.F. miles of a particular customer, say someone in Yellowknife from the delta, you take the actual distance that gas travelled from the delta to Yellowknife and multiply it by that M.C.F. mile to get that customer's M.C.F. miles.

A Yes, you take his M.C.F.s times the number of miles the product has moved to get his M.C.F. miles.

Q To get his M.C.F. miles?

A Yes.

Q And having arrived at that point you then have to determine what it's going to cost that customer for that transportation.

A Yes sir.

Q And you do that by taking that customer's -- the ratio of that customer's M.C.F. miles to all M.C.F. miles.

A Yes.

Q And then you multiply that ratio against the total cost of service of the entire system.

A Yes sir.

Q Now, the result of doing that, sir, is it not, is that customer in Yellowknife pays a proportionate share of the cost of the line from the Yukon-Alaska border to Travaillant Lake, and from Caroline down to Kingsgate, neither of which serve a Canadian need.

A No, he doesn't.

Q Well, sir, if you are multiplying against the total cost of service, how can it be otherwise?

A Well, just because of the calculation you went through. You've calculated his M.C.F. miles, you've divided it by the total M.C.F. miles, which include the amount of M.C.F. and the miles in your example that the Alaska gas moves from the Alaska-Canadian border to Travaillant Lake, the amount that the Richards Island gas -- that's part of it -- the total M.C.F. times the mileage there, plus the total M.C.F. going through the whole system from there south, so that he's paying a proportionate share of those total M.C.F. miles. For instance, the gas moving from the Alaska border would pay more because there are more -- proportionately more M.C.F. miles involved in the movement of that gas than there is from the Richards Island gas.

Q Yes sir, but if you

divide this Yellowknife customer's M.C.F.s into the total cost of service of the system, he in effect is paying part of that transportation, is he not?

A He's paying his proportionate share of the total transportation cost of that system.

Q The total transportation includes the portion from the Alaska-Yukon border to Travaillant Lake.

A It includes everything, yes sir; but then when you allocate the M.C.F. miles to that customer where you're moving Alaskan gas through to all those points, you will find that he's paying his share of that cost.

Q Mr. Horte, have you read Mr. Brackett's evidence on this point before the Federal Power Commission?

A No, I haven't.

Q Mr. Commissioner, it's a fairly lengthy excerpt, but in my submission it is significant because it does show what I was trying to lead to, the preference of a U.S. customer over a Canadian customers in transportation costs. Mr. Horte, it's in Volume 4 of the Official Stenographer's Report before the Federal Power Commission, Tuesday, May 6, 1975.

Pages 662 to 667 inclusive.

A Yes.

Q And I derive from that evidence that Mr. Brackett --

MR. GENEST: Let's not talk about what you derived from it, Mr. Gibbs, let's have what he said.

MR. GIBBS: Surely I can explain to the witness that I understand from that evidence that Mr. Brackett and you have a different view and perhaps we can go through it and you can tell me when we have finished whether there is or is not.

Now, sir --

MR. GENEST: No, sir, I object to that method of cross-examination. I think that the rules are well established and they are established for a good reason and they are other the statement of that kind is put to the witness and he is asked whether he agrees with it or not. If he agrees with it that is the end of the matter.

MR. GIBBS:

Q All right, sir, I was attempting some explanation so that you would understand what I was doing, but if my friend wants me to follow those rigid rules of procedure then I will.

Starting at page 662, Mr. HOrte --

A Yes --

Q Near the top of the page Mr. Connelly of El Paso is cross-examing Mr. Brackett.

"MR. CONNELLY: I am not going to ask him again how he did it." They have gone through this several times and don't understand each other.

The presiding judge says:

" YOu can show a little forebearance."

The witness said:

" Yes, sir.

THE PRESIDING JUDGE: Let's go through it again.

WITNESS: Yes, sir. The method that is specified in the tariff and which I am familiar with is that we are trying to determine the portion of the cost of service which each shipper will bear. "The shipper being a utility company." Thereafter we determine the number of Mcf miles of each shipper.

MR. CONNELLY: How do you do that?

A We do that by taking the contractural volumes that the shipper has signed up with the transportation company, in this case, Canadian Arctic, to have hauled, and you multiply it times the mileage which those volumes will travel. For example, if it were an Alaskan shipper--

Q Total Volumes versus number of miles?

A Of the shipper.

Q Correct.

A Okay. Then you do that for each shipper and you determine what proportion any given shipper's Mcf miles are of the total Mcf miles of all the shippers."

That was the ratio I got to with Mr. Horte.

" If there is two shippers and each one travels the same mileage and has exactly the same volumes, well, each has 50% in which case each one pays 50% of the cost of service and you multiply 50% times the cost of service, that is what they pay.

Q All right. Now, if you want to figure out what the per mile Mcf charge would be how would you go and make that determination?

A Well, leaving aside which Mcf mile figure you use you would divide the shipper's share of the cost of service by the Mcf miles. Now, you could use output Mcf miles, input Mcf miles, contract Mcf miles, what have you. We, as I believe, I believe our exhibits use output Mcf miles.

Q And then if you want to describe as you have done in your filings the per Mcf mile charge for the entire system, what do you do? Average those and divide it by the number

of shippers?

A For the total system, the overall average cost figure (which I think is on line 8 or 9 of those schedules, 4 we were looking at) that was done quite differently. That was simply the total cost of service of the project divided by the total Mcf miles of all shippers.

Q I didn't ask you about that. I know how that would be done, but I am asking you how you would get the average per Mcf mile figure."

Then there is an interchange between counsel, sir, and the presiding judge restores order and Mr. Connelly says:

" All right, I think I need to return to this.

Q Directing your attention to the segment between the Alaskan/ Canadian border to Travaillant Lake, that is part of your system presumably would not serve any Canadian need, would it? And the presumption I base that on is that it is not contemplated that the Canadians would get any Alaskan gas.

A That is correct, and at the present time we don't foresee any Canadian

source gas going over that segment since the gas is off in the Mackenzie Delta.

Q So this segment serves exclusively the usage of the American gas consumers, does it not? I mean the segment between the Canadian/U.S. border and Travaillant.

A Yes, that is the planning right now."

Then there is another of these interchanges and the presiding judge lowers his hand and we get back again to the counsel questioning, Mr. Connelly, says: --

MR. GENEST: Well, the presiding judge wants to know where the Beaufort Sea is.

MR. GIBBS: Yes, and there is also a dispute.

Mr. Connelly comes back and says:

" Similarly the lateral from Caroline Junction to KIngsgate..."

A Sorry, what page are you on now?

Q 666. We are back to the questions and answers again.

A Yes, sir.

Q

"Q Similarly the lateral from Caroline Junction to Kingsgate, the entire distance, and the Alberta Natural lateral from Crows

Nest to the B.C. Alberta border to Kingsgate will not carry, will not serve, excuse me, will not serve Canadian gas consumers, will it? Its purpose will be solely to deliver gas for export to the United States?

A Our plan is built upon that. It is possible that a user in British Columbia, for example, might at some point wish to take gas in some way, but that is not involved in our present planning.

Q And there is no contemplated application to do that, is there?

A Well, if there were it would be a British Columbia applicant and I don't know of any.

Q Likewise the portion.--

A Excuse me, I said British Columbia. If we are talking about the portion all the way from Caroline, well, it could be an Alberta user on that lateral, but again the answer is the same, I don't know of any.

Q Likewise the lateral from Empress to Mouncie serves solely the purpose of delivering gas for export

to U.S. markets, correct?

A Again, with the same qualifications, why, that is what our planning is based on, yes.

Q Do you think it is a reasonable probability that the National Energy Board would seek to preserve the Canadian gas consumer from being taxed with any cost of service on those three segments?

A It is very difficult to predict, but you used the word 'probability' and my answer would be no, I do not think that.

Q You think it is a reasonable possibility?

A No, sir.

Q Do you think it is unlikely that the National Energy Board of Canada would seek to elimate those three segments from any portion of the cost of service which the Canadian consumer would bear on the theory that those line segments do not serve any Canadian need?

A You are asking me to speculate on what the National Energy Board will do and obviously I would not really purport to speak for the N.E.B., but my judgment would be

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that it is unlikely that they would do so. The Mcf mile method has long and ~~hoary~~ traditions as being well accepted in the gas industry and among regulators as being a reasonable balancing allocation method in light of all factors. In the situation that we are talking about, I believe, I think Canadian Arctic Gas believes that it is an equitable method of allocation and I am personally confident the National Energy Board will be persuaded that that is the case."

Do you agree with what Mr. Brackett has said?

A Yes, I do.

Q And then do you disagree with my conclusion that I put to you before that a Canadian user, because his M.C.F. miles are being divided into the total cost of service of the entire system, he is in effect paying a part of those segments carrying only Alaska gas?

A Yes.

Q And why?

A Well, for this reason, I think to make any such -- to reach any such conclusion you can't just do it on the basis that you have suggested. Let me give you a simple example. Supposing you had a pipeline system extending over 1,000 miles, the north end or the top end of which, the first 500 miles, moved a billion cubic feet of gas a day; and the second portion from that point down moved two billion cubic feet a day. Now let's assume that in the first 500 miles that that comes from one particular source, and one shipper is paying the cost of service, in your example should be paying the cost of service associated with that, and that from the mid-point on down there is another shipper involved and he then pays his proportionate share of the combined cost of service in the southern 500 miles.

Now, in working the M.C.F. mile basis the first thing you would do is to add up the total M.C.F. miles of that system, you would

take 500 miles, the first 500 miles, times 1 B.C.F. equals 500 mile B.C.F.s. The second segment you would take 500 times 2 B.C.F. equals 1,000 mile B.C.F.s for a total of 1,500 mile B.C.F.s.

Now, to get the average cost per mile B.C.F. you take the cost of that combined system, the whole 1,000 mile system, and the cost of service associated with that, and you divide that by the 1,500 mile B.C.F.s to get the charge per mile -- per B.C.F. mile or mile B.C.F.

Q Can we put a dollar figure --

A Now, if there is anything in your example, if there is any disproportionate share being brought about, it would only be brought about by reason of the fact that the costs associated with the first 100 miles per B.C.F. were higher than the costs -- the proportionate costs associated with the second 500 miles that are moving two B.C.F.s, to the extent that the cost associated in each of those were similar, the M.C.F. mile allocation would be identical with what you're suggesting, a zone mile allocation. So it's only if the costs on a particular segment in the M.C.F. mile allocation are disproportionate for the movement of gas in that particular segment, with the other segment that you get any sort of an imbalance that you're suggesting.

Let me give you an example. In TransCanada Pipelines the M.C.F. mile is used, the M.C.F. mile is used with respect to the western --

the whole system, and it's based on, notwithstanding the fact that they have their larger facilities on the western end of the system and therefore the cheapest cost, if you like, on a zone allocation method. That advantage is worked all the way across the total system on an M.C.F. mile basis, so that the eastern customer also gets the advantage of that larger, more efficient western system and the western system pays a higher cost, if you like, on that basis than he would on a straight zone gate method.

What this does, the regulatory authorities normally use this because who is to say in the final analysis what should be paid by who, without, in that example, without large volumes of gas being marketed,in the eastern part of Canada you in fact would have an extremely high cost in Western Canada, and they have found -- the N.E.B. at least in their judgment -- that the M.C.F. mile allocation is a fair allocation.

Now whether they'll decide that in this case of not, I don't know. I would agree with Mr. Brackett, I expect that they will. If they find something else, it will be something else that we'll live with.

Q But Mr. Horte, you touched on exactly my point when you made the point that on the TransCanada system the western zone pays a higher cost because of those larger facilities. That is what you just finished saying,that the National Energy Board approved that.

A Yes.

Q Now, sir, isn't that so with your proposed M.C.F. mile basis, that the Canadian user will pay a higher cost per M.C.F. mile than he would if those links to Travaillant Lake -- to Prudhoe Bay and from Caroline to Kingsgate were not part of the system? Now you may get other benefits --

A No, I don't know that answer. It depends on whether the costs of facilities in those areas on those legs are disproportionate in terms of cost, compared to the M.C.F. miles that are associated with them. It's just that simple.

Q Well, sir, I'm going to leave that subject at this point, but I say that in the coffee break I'm going to try and work out my simple farmer mathematics and come back and discuss it with you again.

A O.K., very good.

MR. GENEST: On the stationary of the Petroleum Club.

(LAUGHTER)

MR. GIBBS: Q Now, sir, let's for -- not light relief, my friend has provided that -- let's for relief turn to another topic and that appears on page 2 of your prepared evidence.

A Yes.

Q Where you refer to, in the beginning of the first full paragraph, another study group, and that was the study group, sir, which included the Alberta Gas Trunk Line Company Limited.

A That's correct.

Q And the Canadian National Railway.

A Yes.

Q And in fact --

A And Northern Natural -- as I recall, Northern Natural Gas, Colombia Gas, Texas Eastern, and Pacific Lighting.

Q And in fact that study group was the one that built and operated some of the test sites, did it not?

A They operated a test site at Norman Wells and one in the Prudhoe Bay area.

Q Yes sir.

THE COMMISSIONER: I'm sorry, where?

A Prudhoe Bay.

MR. GIBBS: Norman Wells and Prudhoe Bay?

A Yes.

Q And did they not have another one at Nordegg, Alberta?

A Yes, I guess they have a test there in connection with berm construction where you half bury the pipeline and you cover it, use the fill from that to cover the pipeline, so it was partly above-ground and partly below-ground.

Q Yes, so that group had three of the test sites from which information was developed into the subsequently amalgamated study group,

A That's correct.

Q And also, sir, that group began the northern training program, did it not?

A Arctic Gas or Alberta Gas Trunkline commenced the training program, yes sir.

Q And still contributes to the financial cost of that northern training program.

A They do.

Q As do some of the producer companies.

A Yes, it's an industry training program.

Q And the function of Canadian Arctic Gas really is to administer that program.

A Yes, to administer it, manage it, yes.

Q And has Canadian Arctic Gas placed any of the trainees of that program on its staff?

A Yes.

Q How many, sir?

A I'd have to check that figure, sir. I don't have that with me but I do know that we have some. Obviously not very many in that we're not an operating company with the kind of facilities where we can train them, like Trunkline, TransCanada Pipelines and the other companies involved can.

MR. GIBBS: Mr. Commissioner,

it's five to 11. If it would be convenient I might try my mathematics on farm stationery.

THE COMMISSIONER: Certainly. We'll adjourn for a few minutes, and I think that when we come back we'll sit till 12:30 and then come back at two this afternoon and sit for an hour or two this afternoon. Mr. Horte --

MR. GENEST: He's been in training, sir.

(PROCEEDINGS ADJOURNED FOR FEW MINUTES)

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GIBBS: Q I have to confess that my coffee mathematics don't match your engineering ability, so I'll have to leave that to try again over the lunch period and go to another topic at this time.

A O.K., sir.

Q Would you turn, please, to page 14 of your prepared evidence, and --

A Yes.

Q -- particularly the last paragraph where you use the expression:

"Because of the above fact,"

which you've related,

"engineering and environmental considerations were paramount in route selection, design and construction planning."

Could you explain what you mean by engineering considerations?

A Well, the design of a pipeline along a route that would result in that pipeline being a very safe and efficient operation.

Q Well, the fact is, sir, that the route selection was primarily made through a compromise in the Management Committee of the study group members, is that right?

A Are you talking about what part, can you give me more detail?

Q Well, the general route from the delta to the 49th Parallel.

A Well, there were certainly -- I don't know whether you'd call it compromises -- there were a great many studies done, particularly with respect to the routing of the project south of the 60th Parallel.

Q Yes, and --

A I don't recall any real problems with respect to routing on the north end or various --

Q No, perhaps from the point of takeoff from about Fort Simpson, that route initially was what was colloquially called the "gun barrel route" that ran down towards Brandon and Emerson, Manitoba, and that had a different departure point at the 60th Parallel, did it not?

A That was one of the alternatives, yes.

Q And then that route --

THE COMMISSIONER: Excuse me, the gun barrel route only diverts from the present route at the 60th Parallel, is that what you've said?

A Yes, it diverged just north of the 60th Parallel, sir, and took a direct line for the movement of gas that would go east to Canadian markets, or into the mid-west and eastern part of the U.S., which went on more or less a direct line from that point to in the vicinity of Winnipeg, going across Saskatchewan.

Q But it had --

A And with laterals from

that, tying across for the movement of gas to the West Coast markets and tying in with the facilities of Alberta Gas Trunk Line and other systems

MR. GIBBS: But the point of departure from the general present location was somewhat north of the 60th Parallel, was it not, up towards Fort Simpson?

A I'm not sure right off until I look at a map, Mr. Gibbs, just how far north but I think that's generally correct.

Q Yes, and then at a later stage that route was moved westward and that altered somewhat the point of departure across the 60th Parallel, westward from the gun barrel route but not to the present route.

A Yes.

Q And then at a still more subsequent date, it was moved over to what -- generally to what is now proposed.

A You may be correct, sir. I've sort of forgot that intermediate -- all those steps that took place.

Q And each of those moves were not done for an engineering or an environmental reason, but by reason of a decision of the Management Committee.

A Well, those -- let's put it this way, that all routes were looked at in terms of at that stage, not looking at all the environmental factors on that routing south of that point, but

looking at the direct route and the economics of those various routes. Any route which on the appearance of that was finally settled up, of course, was then subject to the environmental scrutinies, etc., that would be required to see just what impacts and problems might be associated with that, and if any changes in that routing were required.

Q And the change --

A We had to start somewhere.

Q Yes, and you start with a map and a pencil.

A Yes sir.

Q And the changes that I've gone through with you, those three from the gun barrel to westward of that and then to the present route, were primarily because of the assumed volume splits where the laterals to the south-west joined the mainline, were they not?

A Well, there are a great many considerations in that routing. It wasn't that simple.

Q Well, sir, let's get at it this way. The reason why the line now runs to Caroline and down the present route through the North-west Territories and splits into two portions there is the assumption that 50% of the gas through the line will go to the south-east and 50% to the south-west. That's the real reason for the present location.

A NO, I don't think it's really the present location is predicated on the kind of split that you're talking about. I think as much

as anything, it had to do with the routing that was ultimately selected was the position taken by Alberta Gas Trunk Line in connection with the project, and the points made by them, the studies resulting from that indicating that it was from their standpoint they felt it most desirable for that system to be located down through Alberta, parallelling their system, or in fact utilizing portions of their system, and particularly looking at the fact that ultimately in the longer term, as reserves within the Province of Alberta declined, that -- and as reserves in Northern Canada, the potential that was there, the expected potential for those reserves to build up, that this would provide a means as these events occurred in the long term to make use of facilities which were in existence, and also to make available this gas within the Province of Alberta.

Q Well, sir, I didn't --

A And as the studies progressed, and the analysis were made of all these things, and the economics associated with it, the results of that were that it was a common decision supported by all members of the Management Committee, including Alberta Gas Trunk Line, that this was the most desirable route.

Q Well, sir, I didn't particularly want to get into the merits of using existing systems or not, but Mr. Horte seems to have led me into that. So Mr. Horte, why not connect your line just inside Alberta with the existing Alberta Gas

Trunk Line system and use those existing facilities, the existing communications, the existing administration, all that exists now with the Alberta Gas Trunk system?

A Well, the reason is that those facilities do not have the capacity to do that. I am saying that in the longer term as those facilities in existence become unloaded, and as additional volumes of gas are available from the north, the opportunity is there to do one of two things: Either expand the facilities that we propose, or to contract for, always knowing that you have the right to expand your own facility as compared to using somebody else's, to contract for unused capacity in an existing system.

Q Yes, sir, and yesterday you gave a learned demonstration of the effect of looping a system and I ask you sir, whether in terms of capital cost, leaving out ownership and so on and following your exposition, it would not be a less capital cost to loop the Alberta Gas Trunk system to build up to capacity, than to build a whole new line from the 60th parallel to Empress and to Kingsgate.

A In our opinion, no, because the volumes are such that the loop that you would have to put on ALberta Gas Trunk Line would be a complete loop.

Q Starting at what point, sir ?

A Starting the whole way.

Q And is that your evidence from Caroline on also?

A From Caroline on --

MR. GENEST: On to where? On up or on down?

MR. GIBBS: Well, I believe the witness understood, he was about to answer.

MR. GENEST: I would like to understand too, Mr. Commissioner.

THE COMMISSIONER: WEll, could we have that clarified? I thought it was on down, but am I --

MR. GIBBS: That is what I thought and I am sure that is what the witness thought,

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sir.

A Yes, sir, I think so, on the volumes that will be available, it will require looping from Caroline, complete looping from Caroline on.

Q Well, sir --

A I am sure that there will be a good deal of testimony on this subject during the course of the National Energy Board hearings where that will be gone into in depth.

Q All right, sir. Then we will leave it, but let me invite you again to say, to agree with me, that one of the prime influences on the route location was the assumption that 50% of the gas would go out of Canada through Kingsgate and 50% through Mouncie.

A No, I don't think that was the prime one. It was a consideration, but not the prime one.

Q It was one of the prime considerations?

A No, I think a more prime consideration was the connection with existing facilities and the long term ultimate use of those facilities including those of TransCanada Pipelines going from the Alberta/Saskatchewan border to Manitoba as compared to the possibility in the long term of those facilities becoming idle if one made a direct connection across to Winnipeg.

Q Now, sir, it is a

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basic assumption, is it not, that the volume splits at Caroline will be equal with 50% going southwest and 50% southeast?

A I very much doubt that, sir.

Q Well, that is what Mr. Brackett told us -- told the Federal Power Commission.

A Those were assumptions made when gas volumes had not been sold. At the present time the -- let's take the case of the North Slope gas. The Exxon Corporation has sold 70% of their gas to the midwestern and eastern movement to companies --

THE COMMISSIONER: Midwestern and eastern what?

A To midwestern and eastern companies, in other words, 70% of the gas that they sell will have to arrive at markets in the midwest and in the eastern part of the United States. The other 30% has been sold in West coast markets. That is Exxon's share.

Q No, that is Exxon's share of Prudhoe Bay gas?

A Prudhoe Bay. With respect to SOHIO's share of Prudhoe Bay 100% of their share has been sold to the midwest and eastern markets. Of the remaining gas,that is Atlantic Richfields gas in terms of significant volumes, 60% of their gas has been sold to the west coast markets. The

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remaining 40% to my knowledge has not yet been committed. We do know that they are are negotiating for the sale of it so I can't say where that goes, but let's assume that all of it went to the west coast markets. That would mean roughly, and this is only roughly and I do not want to be accused of quoting individual companies reserve estimates, but my understanding is that the gas reserves in Prudhoe Bay are roughly shared and this may be off to some extent, but roughly on a third to third basis between those companies, the bulk of those reserves.

So, what you are looking at as a maximum, as I see it, from those three companies at least, if all of the remaining Arco gas went to the west coast market, of in effect the 60% of one-third that has now been sold, the other 30% from the other company that has been sold, which gives you 90% of a third, and a remaining unsold 40% of a third, so if that were sold you would have 130% of a third as a maximum going to the west coast market which would certainly be less than 50% of the North Slope gas.

With respect to the Canadian gas, I don't know what the split of that will be. Certainly a large portion of it I would expect the major portion of it would probably go east -- we do know that the TransCanada is negotiating in that area and in recent conversations that I have had, I know of no negotiations with respect to that gas or being

attempted to move that gas to west coast markets. It doesn't go to say that some of it won't be. Whether that would in fact be taken off the system in Southern Alberta at the Caroline Junction and down through the Alberta Natural system to feed into some B.C. markets in southern B.C. or whether instead that gas would be taken off and tied into the north end of the Westcoast system in the north eastern part of B.C. and the Territories, I do not know the answer to that, but what I am saying is that from Caroline Junction on my best estimate would be that it will not be a 50/50 split. It will be something more than 50% going eastward and something less than that going west.

Q And, sir, would the split of the gas going east and west affect the tariff charges?

A I cannot follow your --

Q Well, would the tariffs be different if 80% goes east and 20% goes west as between those two lines?

A In the routing selection through Alberta, it was agreed that the average from Caroline on, or if you like, the mileage situation for the east and the west movement would be averaged for Mcf-mile allocation purposes.

Q Well, sir, if the end result is that 80% of the gas goes east and only 20% goes west, will that not affect the location of the line down from Fort Simpson, south?

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A I do not think so, no.

Q And it is your evidence here that --

A It all moves down to Caroline, all of it, and then you split it.

Q And it is your evidence here that what I said about the assumption that 50% will go west and 50% would go east is not a correct statement?

A It was an assumption made at that time and will certainly qualify it in all our applications to state that is was just that.

Q But it is the assumption that underlies your design and the location of your facilities, isn't it?

A It does not underline the design and the facilities north of Caroline. It will effect, depending on how that gas splits, the design of facilities east and west of Caroline and facilities,connecting facilities on the U.S. side of the borderas well.

Q And that assumption also is, sir, that 50% of the Canadian gas will go out across the 49th parallel?

A That was an assumption made for rate estimating purposes and you and I have been through this several times, and I might just start off right away by telling you that in my opinion I don't think any of the Canadian gas will go across

the border. I think all of the Canadian gas will be required in the Canadian market that we now see available in the Mackenzie Delta, and of course, it doesn't matter what I say, the National Energy Board is going to make that determination in any event. Nobody can export gas out of this country without it being determined to be surplus to Canada's needs.

Q And I take it, sir, that that could make a difference to the design of the facilities south of Caroline?

A I have said that the facilities south of Caroline I am sure when all the volumes are sold, are going to have to be redesigned to fit the volumes actually moving in the two directions.

Q All right, sir. Now, would you turn to page 9 of your prepared evidence.

And there you are speaking of pipeline looping --

A Yes.

Q -- towards the end of the page you say eventually as you continue to increase the capacity of the pipeline by adding additional segments of loop you will end up with a duplication of the existing facility, but this is done over a period of years and only as demand and supply demonstrate the feasibility of increasing the capacity of the system.

A Yes.

Q Now, sir, isn't that demand and supply demonstration of feasibility also

a basic principle applying to the initial construction of your pipeline?

A Well, I do not know how you apply looping to the construction of the original pipeline. You have got to have a continuous system if you are talking about a pipeline.

Q I want to extract your words that feasibility is demonstrated by demand and supply and suggest to you that that also applies when you design your original system.

A Yes.

Q Feasibility turns on the demand and supply.

A Oh, yes, sir.

Q Yes.

A I am sorry, I misunderstood your question.

Q And it also, the supply and demand supply determines timing of construction.

A Yes.

Q Yes, sir. And so, sir, to -- in order to do your -- to prepare your timing and do your design, presumably you have done demand and supply projections to support the 48" size line from Prudhoe Bay to Travaillant Lake?

A Oh, we have done supply and demand projections which show the feasibility of the total system. The total system that we put forward in our application -- you cannot take a particular segment and divorce it from the overall system.

Q Well, surely --

A The economics of an overall system.

Q Surely unless there is a demand and supply that shows the need for certain volumes of gas at certain times through the link from Prudhoe Bay to Travaillant Lake, unless that's demonstrated, you won't build the link, will you?

A Well, if there's no gas and no demand, you obviously wouldn't build a link.

Q That's right. So then you start with a supply and you try and design your link to meet projected demand.

A Anticipate -- you design it to meet the, what you know is the situation as it exists at that moment, and anticipate as best you can within the feasibility of economics of the total project how much, if you like, excess capacity or over-capacity you can afford in any system.

Q Yes, and that is carried out by projecting supply availability and demand for that supply into the future.

A Yes.

Q And then you have --

A That's one of the ingredients.

Q Yes, and you have done those kind of projections?

A Yes.

Q By what date, Mr. Horte,

do your studies show that the full capacity of the lateral to Prudhoe Bay, will be required by the demand and supply for Prudhoe Bay gas?

A I can't give you any definitive date other than to say to you that with the known proven reserves in Prudhoe Bay of 24 trillion cubic feet, the anticipated initial volumes of two to 2 1/4 billion cubic feet a day, as I've mentioned, I would anticipate that if no additional reserves were discovered in Alaska with time as the oil is produced, the gas oil ratios increase, that the volumes from Prudhoe Bay itself would gradually increase over a 20-year period. Now that isn't obviously the only factor That area is similar to the Mackenzie Delta area, is an area where geologists anticipate future discoveries of gas. I can't put a specific timetable on that. As I say, it may well be -- and I said in my testimony -- that on a straight economic basis, these are things that ae only known after the fact, it may be that on a straight economic basis a smaller diameter may prove -- it may prove to be that a smaller diameter in that area would have been a wiser choice in terms of straight economics. I don't know, but looking at all the possibilities and also environmental considerations, it seemed to us on a judgmental basis that this was a good sizing to go for, and the overall economics of the project supported it.

Q Mr. Horte, all you've got is half of the equation -- the supply. Now the other half, surely, is the demand, and without the

demand all the supply in the world won't justify building a pipeline.

A Do you really question whether there is demand for Alaska gas in the United States when the curtailment of existing supplies on some systems is as much as 30% of looking after existing customers, let alone expanding to new customers?

Q No sir, I am suggesting, what I'm asking you is when your demand studies show that that lateral will be used to capacity.

A As soon as gas volumes are available, I think the demand is there today.

Q And so it's not any question of market buildup, it's a question of the gas being available to fill the line.

A Yes sir.

Q And that could well be within two years of construction.

A I don't know how soon that will be, it could be, yes.

Q It depends on how quickly wells can be drilled and plants constructed for the gas which is not associated, is that the key?

A New gas discoveries, yes.

Q And so, sir, you may be into a looping program there, not three or four or five years after completion of construction, but within one or two years.

A I would very much doubt that, sir, because the system when initially constructed

will commence at a volume throughput of three to 3 1/4 billion cubic feet a day. It has room to expand its capacity to 4 1/2 billion cubic feet a day, simply through the addition of compressor horsepower. I'm talking of the segment from Travaillant Lake south, that's the mainline. The northern laterals each have a capacity by the addition of horsepower to each expand to an amount of 4 1/2 billion cubic feet a day.

Q Well, Mr. Horte, it's really getting to this question of looping where I'm trying to arrive at, and I'm surprised that you are not able in your planning and your projections and your forecasts of supply and demand to do more than give a range of when the looping is likely to start on that lateral, and that's all you can just say within some period of years after the completion of construction.

A Yes.

Q And you have no more finite forecast than that?

A And I really don't think frankly, if you want my honest opinion, you can have all the forecasts you like, they really don't honestly mean that much. But we are anticipating, however, which I've stated, is that because of the potential in these two areas we think it would be improper or it would be wrong for us not to put forth an opinion that additional reserves will be developed in these two areas which will require the looping of a facility

which will suggest it be built in the first instance. Now what the timing of that is, I think you can get as many guesses as you have estimators.

Q Well, sir, it seems likely, does it not, that notwithstanding your regard for that sensitive area, there will be construction activity between Prudhoe Bay and Travaillant Lake every construction season from the time you start.

A No, I don't know that. The volumes that we anticipate from Prudhoe Bay, if no other discoveries are made, would stay at the two or 2 1/4 billion cubic feet a day level until volumes increased from Prudhoe Bay itself. I don't know when that's going to happen.

Q Sir, you've designed a facility capable of 4 1/2 billion cubic feet a day on your confidence that that's the amount of supply there is going to be to go through it.

A Yes, but I didn't say that it's going to happen every year.

Q And you designed it so that in the initial instance you put in only the necessary compression to move two billion cubic feet a day.

A Yes.

Q And the next year you expect to put in enough to move it up to 2 1/4.

A And it remains at that throughout our projection.

Q And then you have still

more compression you can add to get up to 4 1/2 billion cubic feet.

A Absolutely.

Q And you, as I understood you yesterday, think that it might be within a range of three or four years after completion of construction when you start your looping program.

A I think that is certainly a possibility.

Q And in the interim period in order to move the capacity up to 4 1/2 billion cubic feet a day, you'll be adding compression each year.

A From Travaillant Lake south.

Q No, from Prudhoe Bay to Travaillant Lake.

A Not each year.

Q Are you going to go in then and put in all the extra compression in one year?

A No, but the projection that is set forth in this application for Prudhoe Bay during the five-year period that I discussed goes from two billion in the first year of Prudhoe Bay production, to 2 1/4 and remains at that, and you will not see additional horsepower added during the remaining three-year period from Prudhoe Bay right in the application.

Q By why not, sir, if the supply is there and the demand is there?

A I don't know that the supply is there today.

Q Well, we're sort of going around in a circle, but I thought you designed 48-inch confident that the supply was there.

A Well, we can go round and round on this. I don't know how I can better explain our thinking and judgment that went into this planning than I've already done, sir.

Q And notwithstanding your confidence, just to make certain of it you are not able to point to a date when, or a year when looping is likely to commence on the Prudhoe Bay lateral?

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A No, I can't. First of all, before any looping would commence on the Prudhoe Bay lateral, you would have to have supply volumes which increased what is now anticipated from Prudhoe Bay, you would have to approximately double that before any looping would be necessary on that lateral. You would do that by adding horsepower for the first two and a quarter billion cubic feet a day, so to the extent that the volumes grow beyond that, then you would require looping. But you do have built in as compared to the volumes now estimated to be available from Prudhoe Bay, that 50% of additional excess capacity to be utilized before you start looping.

Q Let's turn to the Mackenzie Delta lateral.

A Yes.

Q Mr. Horte, do you have demand and supply studies to support the feasibility and timing of that lateral?

A Well, we -- our demand studies would indicate that that gas, the volumes that we see will be required in the Canadian market, can be absorbed by the Canadian market.

Q And you have supply studies which demonstrate that 48" for Mackenzie Delta is the appropriate size?

A Well, I can only go through the explanation again that I gave yesterday, if you want me to do that?

A Yes, they are --

Q And they are --

A -- conslutants that we have retained to make these estimates and they will continue to make these estimates and evaluate the situation as time goes on.

Q And sir, as of January of 1975 your forecasters predict that by the end of 1979 there will be in the Delta Beaufort area reserves of some 21 trillion cubic feet?

A I think that is a forecast of a learned projection, yes

Q And --

THE COMMISSIONER: Excuse me, Mr. Gibbs, whose forecast is that?

MR. GIBBS: Well, sir, I sort of hesitate to mention this. This is a document which I tried at one time to introduce in evidence. It is section 14-B, National Economic Effects of the APplicants proposal. It is Arctic Gas's own filing with the National Energy Board.

THE COMMISSIONER: WEll, now we know where the figure comes from.

MR. GIBBS:

Q And your forecaster, sir, shows that deliverability of two and a quarter billion cubic feet per day will be reached in early 1984 from the Mackenzie Delta.

A That is a projection, yes.

Q And that deliverability of 4 1/2 billion cubic feet per day wil be reached in early 1986 from the Mackenzie Delta.

A I am assuming you are reading out the accurate figures. I don't recall the specific figures.

Q Yes, I am reading directly from your document.

THE COMMISSIONER: Now, what was the last figure? I got 2 1/4 billion cubic feet per day by 1984. What was the next figure?

MR. GIBBS: 4 1/2 billion cubic feet per day by early 1986, sir.

THE COMMISSIONER: That is from the Mackenzie Delta lateral?

MR. GIBBS: Yes, sir -- into the Mackenzie Delta lateral.

Q And so, Mr. HOrte, if only the supply side is considered, isn't it followed that the looping of that lateral will have to start about 1984?

A I though that you said that it didn't become loaded until -- on that projection until 1986.

Q I am sorry, until 1986.

A If that were the situation and those projections turned out to be accurate you would have a fully loaded system on that lateral by 1986 and to the extent that additional reserves were discovered subsequent to that and were such that

they weren't required to maintain deliverability of the existing contractural commitments and therefore some portion thereof or all thereof were utilized for looping, then obviously you would then require looping thereafter.

Q Yes, and from 1986 you would require looping until -- continuously until 1990 when your deliverability forecast will reach about 6 billion cubic feet a day.

A Those are projections of what may be available from the area. I don't think that one can go from those numbers and decide today that a looping situation should take place when that availability of gas is there. It will depend upon the total reserves there, not just the availability of gas to determine whether it is a sound thing to in fact loop at that point in time or some of those new reserves are required to maintain deliverability in older reserves. So, you can't just make that jump like that.

But before we get off this subject, I would like to make this point and that is that those are simply projections. The situation today with respect to the Delta reserves, we estimate the reserves in the area that we now know exist to be at about 6 1/2 million cubic feet a day. If we are wrong in our projections --

THE COMMISSIONER: Excuse me --

A Yes.

Q I am sure that you did not

mean that, did you?

A 6 1/2 trillion cubic feet of reserves, sorry.

Q Yes.

A Did I say "billion cubic feet a day."? Those are the present estimates of our reserves. If we are wrong in those projections and the volumes of gas increase slowly in, the discoveries of gas increase slowly in the Mackenzie Delta, or don't in fact increase, you still have a very economic means of moving what you have got there to the market place in Canada as a supply of energy and the reason for that is that that volume, albeit a smaller one, when combined with the larger volumes and the proven reserves in Alaska of 24 billion cubic feet, make it economic and you therefore do not have to take the risks and even if you have over sized that 45 -- that 135 miles of 48" lateral to the Mackenzie Delta, the overall economics of that project are still sound.

MR. GIBBS:

Q Yes, sir, but these forecasts, Mr. Horte, are put forward because they represent your company's best opinion of what is likely to happen in the future.

A But it is still a forecast sir, and it has many risks, and they are risks just like the forecast made for development and reserves in Alberta where everybody was forecasting the rate of discovery to continue at the rate of three -- 2 1/2 to 3 trillion cubic feet a year five years ago and

since then they have averaged less than one and a half.

Q And these forecasts are put forward intending that regulatory people and interested parties will rely upon them as the best prediction of what is likely to happen.

A They can rely upon them as certainly a prediction of what might happen.

Q Not what is likely to happen, sir?

A Of what might happen, certainly.

THE COMMISSIONER:

Q It is your best guess, is that what it all means?

A As a best guess at the time that that study was done and I say that when you are forecasting futures, it is very important that you trace the rate of the discoveries that are taking place each year, that has an impact and a bearing upon what you think is going to happen. If the -- if this last winter and during next year, etc., certainly the evaluation of the development in the Mackenzie Delta may change. It is only based on the best information that you have at the time. That information improves as additional drilling discoveries or dry holes are found to be the case in a particular area, so what I am saying, that was the best estimate at the time that that was made.

Q Then sir, if these forecasts are to be treated not as even probabilities

but only possibility because they are predicting the future which is what I understand you to say.

A Yes.

Q Then I suppose that applies to your whole project, because you are forecasting what capital costs will be, you are forecasting steel availability, you are forecasting logistics, you are forecasting manpower. Where is --what can we take hold of and say this is firm?

A Well, I would say that when you are forecasting material items such as you are talking about, etc., that is something that you obviously can get a handle on to a much greater degree than you can get a handle on something below the ground that you really do not know exists until you in fact drill for it and find out.

Q Well, maybe we translate it by saying that no forecasts are totally reliable, but some are more reliable than others.

A I think that is a fair statement.

Q All right, sir, lets go back to your forecasts and consider the other half of the demand supply equation for the delta gas, and your forecasts sir, and I reading from table 5 on page 8 of volume 14-B of your filing with the National Energy Board.

A Yes.

Q YOur forecast in January of 1975 is that none of the gas from the Delta or the Beaufort Sea is needed in Canadian markets until 1984.

A Yes, and I'm sure you've read the testimony associated with that, that the demand supply hearings before the National Energy Board where we went into that in great depth and the assumptions that went into that, which I say in very quick summary, that involved a continuation of not the present discovery rate in Western Canada, but assuming that incentives, etc., would be there which would restore the drilling activity, the discovery rate that had been experienced some years ago.

Secondly, that the infield drilling in existing fields to maintain deliverability would take place to a very large degree, which has not happened, which we testified to. I think you went through that whole record and I think it's pretty clear, and if you really want testimony on that area in this hearing I think frankly that you know, I can't -- I would like to rely on that testimony which went on for days, sir.

Q Well, sir, the document filed is his forecast in January of 1975. Now if you tell me that it's not a reliable forecast of Canadian demand, I'll leave it alone, because it seems to me that you must put up some forecast of Canadian demand to justify your economic feasibility of the 48-inch line and the buildup period.

A I'll put it this way, it was our best estimate of the Canadian demand; but the subject you and I have just been talking about -- you just switched -- was supply, and I'm telling you

that that forecast in there, in my opinion, is not a good forecast in light of the situation as we see it today, and that was testified to at length.

THE COMMISSIONER: Well, excuse me, you mean the forecast in the filings of January, 1975?

A Yes.

Q You no longer rely upon them?

A With respect to the availability of gas from the western provinces, I certainly think those forecasts are --

Q They are not always the demand picture?

A The demand for gas from other sources, yes.

Q But the figures cited earlier about the Mackenzie-Delta supplies --

A We have not revised those.

Q I see.

A No sir.

MR. GIBBS: Q And presumably to follow that up, you will propose to revise these supply requirement balance figures that are in 14-B filed in January of 1975 as they're no longer reliable.

A Let's put it this way, a great deal of testimony was put on these in that record which I think qualified as I've tried to do here in a few sentences and can't do very effectively, the assumptions, etc. in that forecast, and the fact that many of those assumptions in light of the then

circumstances when testified to, appeared to be overly optimistic assumptions. In the final analysis, having heard all of that testimony, the National Energy Board will be coming down, as I understand it, with a report any day. They will, with the responsibility they have, be assessing that whole situation and coming up with their own findings in that regard, and I think their own findings in this regard are going to be very important and pertinent to the situation with respect to this pipeline and where gas is going to go, and there's not really much point in my pre-judging that. It's going to be available.

Q Well, Mr. Commissioner, my quandry is this. This witness has testified that as a test of timing and feasibility one takes into account demand and supply, and he has with some qualifications, confirmed his supply projection, but we're missing the other half of the equation, demand.

MR. GENEST: You keep switching on him, Mr. Gibbs.

THE COMMISSIONER: Well, let Mr. Gibbs just complete his statement here.

MR. GIBBS: He's no longer prepared to rely on his demand figure. Now --

A I don't understand what you mean by "demand". If you're talking about Canadian market demand, that's our best estimate of Canadian market demand. If you're talking about as a demand element, the difference between the ability of Southern Canadian reserves to look after those

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projected market demands as another demand with respect to northern gas, then I would say that element of demand, if that's what you're calling it, would have been changed, yes, during the course of that testimony.

MR. GIBBS: Well, Mr. Commissioner, perhaps this matter might be cleared up a little more quickly if my friend would withdraw his objection he made some time ago to the marking of this document as an exhibit, and then I can point, as the witness can, page by page and column by column as to what we're discussing.

A I'm in the hands of counsel. I would only add this comment --

MR. GENEST: My friend is free to read from those excerpts which he feels are necessary to his cross-examination.

MR. SCOTT: Surely, Mr. Commissioner, at this stage the whole document should be put forward. You will recall that it was presented earlier by Mr. Gibbs because he wanted to ask some questions about national economic impact , and there was an objection really to those questions rather than to the document from Mr. Genest. Your ruling was that, as I recall it, that that matter should not be pursued and it therefore followed that at that stage this part of the application did not have to be, and should not have been marked as an exhibit. This part of the application as I understand it is now being used for an entirely different purpose, that is

to determine what will be built on the two laterals, if not elsewhere, and the determination of how and when it will be built and it seems to me that to that extent the application now -- that part of the application becomes relevant and should be marked.

MR. GENEST: Mr. Commissioner, as long as it's understood that by having it marked I am not to be taken as agreeing that every part of that document becomes relevant to these hearings, I have no objection.

MR. GIBBS: Perhaps my friend has a copy then that he can produce as an exhibit?

MR. GENEST: Well, let it be understood, I think Mr. Gibbs is tendering that as an exhibit and I have no objection. I stipulate that it's been prepared by us.

MR. SCOTT: I think everybody has a copy, and surely we can find one that can be marked.

THE COMMISSIONER: Everybody but me.

MR. SCOTT: Everybody but the Commissioner.

SECTION 14(b)
(APPLICANT'S PROPOSAL TO N.E.B. MARKED EXHIBIT 130)

MR. GENEST: The applicant's proposal, is that the one?

THE COMMISSIONER:

What exhibit number does this have, Miss Hutchinson?

THE SECRETARY: No. 130.

THE COMMISSIONER: Let me make it clear that I am allowing these questions so that this Inquiry can pursue with its task of examining the likely impact of the construction of a gas pipeline and all its ramifications, and the question of looping is very important because we have to determine whether we are faced with a three-year program of construction in the north, or a program of construction that will last over many years because considerations of supply and demand will necessarily lead to looping along the line over a period of years.

Now I'm concerned with the question whether this Inquiry is looking at a three-year project or a ten-year project, and I want it understood that I'm not about to resolve or even to consider these questions of supply and demand, because those are questions for the National Energy Board. I want that understood. I'm sure counsel do understand that, but --

MR. GENEST: I understand, sir.

THE COMMISSIONER: Well, Mr. Gibbs understands it, too.

MR. SCOTT: Well, Mr. Commissioner, I'm not sure I understand it. It may be and perhaps this is what Mr. Gibbs is leading to, and it may have to be dealt with later, it may be that some kind of preliminary resolution will have to be made as to those questions before you can judge whether the

construction program that confronts the north is three years or ten years.

THE COMMISSIONER: Oh yes.

MR. SCOTT: So that this Inquiry may be faced with not the same question, and not to be decided with the definitive manner in which the Energy Board will consider it and decide it, but it may have to make some kind of preliminary determination about those questions.

THE COMMISSIONER: OH yes, I mean I'm not even going to go that far with you even at this point, Mr. Scott. But we're certainly examining these matters with a view to determining the likelihood of looping.

It occurs to me that when we break for lunch, Mr. Scott, that Mr. Genest and Mr. Gibbs and you might get together and see if you can develop a procedure under which it would not be necessary for us to review in extenso all of the matters that Mr. Gibbs and Mr. Horte covered at the Gas Supply Hearing before the Board. If the Board is coming down with a determination on gas supplies, very soon, and according to the papers they are expected to, that might -- I am confident it would be, would shed a great deal of light on this whole controversy and we might be better off to consider those matters when Mr. Horte returns in June.

But however, you gentlemen might consider that over the lunch break and if you can't work out an agreement, we'll just carry on.

MR GIBBS: Mr. Commissioner, in Exhibit 130, under the tab Section 14-B, the second blue tab, on page 6 there is a table entitled:

"Table 4, trend gas projection, T.C.F."

I'm sorry, yes, table 4, "trend gas projection, T.C.F." on page 6, and it was from that table that I was obtaining the numbers with which Mr. Horte agreed as to reserves in 1979, and that number of 21 trillion cubic feet was obtained by adding the column, the numbers under the column headed:

"Mackenzie Delta"

down to and including 1979, and the numbers under the column,

"Beaufort Sea"

down to and including 1979, and then totalling those together, and that comes to 21 trillion cubic feet.

Mr. Commissioner, if you'll turn then to table 5 on page 8, it was the figures under the second-last column of that table,

"Deliverability from northern trend reserves to Delta-Beaufort"

that I obtained the daily deliverability figures, which I put to Mr. Horte, and that is that there would be 2 1/2 billion cubic feet per day.

THE COMMISSIONER: I'm at Table 5 now. Could you tell me again what we're doing with Table 5? Forgive me.

MR. GIBBS: Well, from Table 5 -- and I should point out, sir, that that is quoted in annual volumes, not daily volumes, and as a matter

of mathematics, 2 1/4 billion cubic feet per day comes to 822 billion cubic feet per year, and it was from the column headed:

"Delta-Beaufort,"

the second-last column, that I put to Mr. Horte the numbers with which he agreed, that in -- sometime in 1984 the daily deliverability of 2 1/4 billion cubic feet per day would be reached somewhere between 787 per year and 1.4 per year, and that in 1985 the trillion 1/623 billion cubic feet in that year is slightly more than double 822, so it's a little over 4 1/2 billion cubic feet per day, and I had Mr. Horte then agree that if those projections were correct, looping would have to start in 1986, if the increased deliverability was to be carried through the line.

Now at this point, sir, what I'm trying to discuss with Mr. Horte is the column headed:

"Surplus or deficiency excluding northern trend gas."

Mr. Horte has pointed out to me that I was using the expression "demand" incorrectly, that what I should have said was that that forecast shows that there will not be a deficiency requiring Delta-Beaufort supply until 1984 when the deficiency is shown as 186 billion cubic feet in that year.

Q That's what that forecast shows, Mr. Horte?

A Yes, I would like to point out the third column which shows deficiencies

excluding trend gas and make the point to you sir, that trend gas is only an estimate, whether it's in Alberta, B.C., Northwest Territories or elsewhere.

And this trend gas is a projection of what might be developed in Alberta and B.C. in the intervening period. That may be available to the market and it may not be available to the market. If it's not found, if it's not discovered, it won't be available to the market.

THE COMMISSIONER: But if it is found, then --

A Then you would end up --

Q --then you won't have that deficiency.

A Then you wouldn't have that deficiency.

MR. GIBBS: You wouldn't have the deficiency of 186 billion in 1984, is that what you're saying, Mr. Horte?

A I am saying that if that trend gas were not found, which is projected from Alberta and B.C. reserves to be capable of producing a trillion 115 in 1984, that if that is not found that the deficiency shown over in the column you earlier referred to of 186 trillion would instead become 186 billion, would instead become 186 plus 1,115.

THE COMMISSIONER: I think that we will adjourn now. I think that Mr. Scott, that you might -- I really urge you to get together with Mr. Gibbs and Mr. Genest and perhaps even

Mr. Horte as well, at lunch to see if you can't make some headway on these figures that we're wrestling with. I want to know whether an examination of these figures reveals that there is a very real likelihood of looping, not only from Travaillant Lake south to the 60th Parallel, but whether there is a very real likelihood of looping from Prudhoe Bay to Travaillant Lake because that, if it occurred, would mean continuing construction along the North Coast. The looping from Travaillant Lake south to 60 would mean continuing construction along the Mackenzie River, and of course if there were looping from Richards Island south to Travaillant Lake, we would have continuing construction on the rim of the delta, and if finally, the route that were to be approved were the cross-delta route, that would mean you would have continuing construction at the mouth of the Mackenzie Delta. So I am concerned whether what is proposed is a three-year project, a vast northern construction project over three years, or whether what is proposed is really in all its ramifications a project that may well involve continuing construction in the north over a period of ten years.

Now, the National Energy Board has its task, and it is no part of my job to infringe upon it in any way. But if you gentlemen can make some headway in sorting out these figures, or at least sorting out the approach we ought to take to them, bearing what I have said in mind, then we might get a little farther this afternoon. And this is no

criticism of you, Mr. Gibbs. It is a relevant line of questioning for my purposes, the purposes I've outlined, but I don't want to re-hash everything that went on at the Gas Supply Hearing.

MR. GENEST: Well, sir, that's my concern. These figures and projections form the subject of days of testimony before the National Energy Board in the demand supply hearings and it seems to me that the starting point for your Inquiry -- I make this suggestion very respectfully -- should not be from square one, but should be from the findings of the National Energy Board on the matters that have occurred before it, and perhaps this debate should be postponed until we have that report.

MR. GIBBS: Might I make one point, sir?

THE COMMISSIONER: Yes.

MR. GIBBS: The point really, and you brought it up, is the timing of looping. Now if these --

THE COMMISSIONER: Yes, the timing of the looping, yes.

MR. GIBBS: If these supply projections are correct, and they're the best that can be obtained, and one goes only by supply as Mr. Horte has agreed that looping starts in 1986 on the delta portion, well there is then 4 1/2 billion cubic feet coming through the delta portion, so it must start on the portion south of Travaillant Lake because it's only got 4 1/2 billion cubic feet capacity

and there's some coming from Prudhoe Bay. Now the reason I'm getting into the demand is that if the throughput is related to Canadian demand, notwithstanding the available supply, there may be less coming through because just enough to meet the demand, and that's why I'm anxious about demand. It's not to rehash National Energy Board, but to try and get a handle on timing.

THE COMMISSIONER : Yes, well, why don't you gentlemen get together at lunch and consider this? We're all looking to you for leadership in this vital matter.

(PROCEEDINGS ADJOURNED TO 2:00 P.M.)

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GENEST: Mr. Gibbs and I and Mr. Scott have not much progress to report on an attempt to some to some agreement on this. I have some submissions to make in connection with the line of inquiry in which Mr. Gibbs seems to be launched now. If it is , of course I reconize the validity of your concern with respect to the effect of supply and demand and so on on the question of looping and I take no objection to any line of questioning that is directed to elucidate that matter, but the submission that I would like to make, sir, is that that line of questioning ought not to be a repetition of the contest and the disagreements that took place before the National Energy Board where both Arctic Gas and Foothills were represented by counsel, hearings in which both parties took part and on which an adjudication is going to be made by the National Energy Board. If we are in a court of law there are some Latin maxims that apply to this, the pronunciation of which I frankly forget but it has something to do with no one shall be twice vexed.

In my submission, sir, it would be pointless for you to start or to go into the very Inquiry that the National Energy Board has devoted so much time to to come to a finding and my suggestion, my submission is that if there is going to be a debate on those matters, it should

await the publication of the report of the National Energy Board which is going to provide a much more convenient starting point for this Inquiry than a debate ab initio on those issues.

That is my submission.

MR. GIBBS: Well pronounced, sir. Obviously, Mr. Commissioner, we are not embarking on that kind of an investigation. My friend knows full well in that kind of supply and requirements hearing one engages in examining field by field throughout Canada,the deliverability and reserves of that field and market by market province by province the demand for industrial, residential and commercial gas and no one is equipped here to indulge in that kind of an investigation, there is no intention of it. If my friend will be patient he will see that this leads directly to the question of looping and the question of timing of construction and when I -- if I can get an answer out of Mr. Horte on what he sees as the deficiencies in the Canadian market, which would require supply from the Delta, that is as far as I am interested in going. I am not going to probe him as to how he calculates those deficiencies which is what one would do inthe other kind of hearing. If I may continue, sir.

MR. SCOTT: Mr. Commissioner, we,as both parties have reported our discussionswere inconclusive, notwithstanding reasonably well-oiled, but I think thatthe concensus was that --

THE COMMISSIONER: Were they conducted in Latin or in English?

MR. SCOTT: They were conducted at length, apart from that I am not prepared to say. I think our consensus was that there was an issue here that might require determination but was not, as I think the judges say, ripe for determination at the moment and that we might, if you please, sir, allow Mr. Gibbs to go on for -- we might move in his direction for a little while and allow him to go on for a little while and allow him to go on for a little while hoping that the mutual intransigence of these two constant battlers would lead them to concede a draw early in the afternoon.

THE COMMISSIONER: Well, who can argue with that?

MR. GIBBS:

Q Mr. HOrte, just to briefly review and get up to the point we were before we adjourned at noon, we did agree, I think that a prime consideration in line sizing is the supply of gas and the demand for the gas.

A Yes, I would agree. I think under today's circumstances probably the major factor is the supply because the indications are regardless whether it is the Canadian market or the U.S. market, that indications are that there are going to be tight supply situations facing us in terms of energy. Whether that energy deficiency

is as a result of a lack of gas supply or as a lack of oil supply, there is a concern, I think a very real concern in both these areas and so I would put greater emphasis on the supply aspect.

Q And it's evident from Table 5 on page 8 of Section 14-B, which has been marked as Exhibit 130, that considering only the supply,by 1985 your forecasters say that the 48-inch line from the Mackenzie Delta will be operating at its capacity of 4 1/2 billion cubic feet per day.

A Well, it says that that is a prediction of the supply available, yes.

Q Yes, and I think you told me that it is now your opinion that all of the gas that you see on that supply column will be needed in Canada.

A Yes, that certainly is my own estimate.

Q Well then, perhaps to get over the hurdle, you would be prepared to agree that the supply numbers under that column,

"Delta-Beaufort"

in Table 5 could be taken to be equivalent to your forecasted deficiencies in Canada in place of the numbers under the next column,

"Surplus or deficiency."

A Yes.

Q Yes sir, then we have the supply and the demand in balance.

A Yes.

Q And accordingly, by 1985 the delta 48-inch line will be operating at its 4 1/2 billion cubic foot capacity.

A No, I'm not saying that

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precisely. There is some lag times and lead times, as you know, that are not set forth there, but this projection shows that that amount of supply would be available.

Q And then that's your best estimate at this time.

A Yes.

Q And it therefore follows that the line from Travaillant Lake south, which is capable of carrying 4 1/2 billion cubic feet per day, would be filled with Canadian gas only, if there were no Alaska gas at all.

A Yes.

Q And it then follows again that if there is any gas from Alaska, and you predicted by that time there would be two or 2 1/4 billion cubic feet per day, the looping of the line from Travaillant Lake south will have to start sometime before 1985.

A Yes, on those assumptions.

Q And equally, if the buildup in deliverability from the delta-Beaufort area follows what is shown in Table 5, the looping on the delta lateral will also have to start sometime prior to 1985.

A Well, I run into some difficulty there, sir, because the looping at any point in time, at that point in time, when one has looped that out you'd certainly be looking at the rate of

new discovery notwithstanding the availability of gas, and having to make that decision whether it was prudent to loop, or that those reserves would be necessary and utilized to maintain the life of existing reserves, you know, I'm just saying that that's another ingredient that goes into any such decision.

Q Yes. Well, would you put it this way, that it will either have to be looped, or if what is forecast on the table is correct, there will be deliverability which will be shut in, for example.

A Yes.

Q So we can take it that sometime prior to 1985 in all probability looping will start on the delta lateral and the lateral and the mainline south of Travaillant Lake. Now are you yet able to give me any better answer than this morning on the probable date of looping for the Prudhoe Bay lateral?

A No, and I would like to go back a moment, notwithstanding those projections and I think that what I testified to yesterday, as you really see all the limitations that are involved, that is the limitations with respect to construction, the development of plants, reserves, etc., that will have to take place, I still would suggest, sir, that if the reserves as projected are developed, I would expect that the existing facilities, if it went into being, in 1980, would not become fully loaded until about 1984 or '85, just having regard to the amount

of physical work that would be required, both in terms of producing facilities and the facilities on the pipeline itself. So I would expect that looping under these conditions where supply would certainly not be the controlling factor. In other words, if you had obviously adequate supply, etc. I would still expect that looping would then take place at or about that period of time and looping itself would take place in increments of about a third of the section in each of the years, which is a rather full construction program, which would mean looping itself, if the supplies as projected were available, would take place over a three-year period and then one would commence powering that facility up.

I would anticipate, just having regard to the availability of -- having regard to the location of the facilities, the amount of construction that can be done in any one year, etc., that it would be unlikely that you would see, after the initial line was fully powered and loaded, that you would see a complete duplication including the additional horsepower in a further period of less than five or six years, notwithstanding what the supply would be. I think that would be a very ambitious program.

Q Five or six years from 1984?

A '84 about, yes sir.

MR. GENEST; I wonder if I might interject? It's not clear to me -- I'm not trying to steer it -- are we talking about the mainline or the supply legs?

A I'm talking about the mainline.

THE COMMISSIONER: From Travaillant Lake south.

A Yes sir.

MR.GIBBS: And about the Prudhoe Bay lateral.

A Well, if you're looping

Q I'm sorry, the Mackenzie Delta lateral.

A Well, you know, there you get into the probabilities. I am saying when you

put the whole ball of wax together I can see building up in a five or six-year period following the initial 4 1/2 billion cubic feet available, the expansion of another 4 1/2 billion cubic feet a day. Now just which of those two laterals or to what extent that's going to come out, it could mean looping on one or the other of those laterals; but when I put the whole package together, that's -- I really can't be more helpful than to try and say that's my best opinion of how things might occur.

MR. GIBBS: Q And sir, if the predictions of 50 trillion cubic feet or more of reserves holds true, you would -- and I appreciate this is looking even farther in the future -- you would expect that that kind of looping program would almost be continuous because at the end of a period when you've fully looped the mainline you would be into a looping program for a third line.

A Well, you get into this situation, that's a very difficult question to answer at this point in time; if you had a fully looped facility, you'd be moving, Mr. Gibbs, 9 billion cubic feet a day, which fundamentally would have to have reserves development in the whole area within that period of time which would total in support of that facility, reserves in the order of 70 trillion cubic feet.

THE COMMISSIONER: By "the whole area" you mean Prudhoe Bay and Mackenzie Delta?

A Yes.

70 trillion cubic feet of gas to support a 9 billion cubic foot a day throughput, so that is a lot of reserves. Now, if it were clear and you're reaching the point in time now where the deliverability in certain of the older fields that have been on production, you would be looking at a period of time where you were anticipating some of those fields and the deliverability in those fields beginning to decline. Now you'd be trying to make the decision in light of the discovery rates, the future potential which you'd have a much better handle on at that point in time because of the developments that had theretofore had taken place, you'd then be making a decision really whether it were prudent to add further facilities or whether in fact the developments that you expect at some stage, notwithstanding the ultimate potential, the rate of finding usually commences to decrease. So these are the kind of judgments that would have to go into that situation at that time.

Whether you want to extend the life of that existing facility, or you're anticipating another 35 or 40 trillion cubic feet which would support another line and also during that period support the decline in the first 70 trillion cubic feet. So it's a very difficult thing for anybody to really pass judgment on today. I, you know, I think looking at the total potential for what it's worth, it seems to me great likelihood that it will support a looping of the existing facilities. There is much more question in my mind with respect to

continuing the third and the fourth and the kind of loops people talk about.

MR.GIBBS: Q Well, sir, is that question in your mind in your capacity as an officer of Alaskan Arctic Gas also?

A I guess it would have to be an opinion just based on my own experience in this business over the many years, and my own geological and reservoir engineering background.

Q Well, sir, with the same imprecise timing as you find yourself faced with, your company, Alaskan Arctic Gas in its opening statement to the Federal Power Commission was quite optimistic about Prudhoe Bay gas. In page 2 of that opening statement, which is in Volume 1 of the Official Stenographer's Report of the Federal Power Commission, is this statement:

> "Arctic Gas has estimated 2 billion cubic feet a day from Prudhoe Bay alone. Initially for planning volumes will increase shortly to 2 1/4 billion cubic feet a day. This is an economic level, but this case cannot be properly evaluated or decided in the context of deliveries of only that size. The public convenience and necessity requires consideration of probable volumes to be delivered from Alaska of 2 to 4 times that amount within the next two decades."

So that leaving out that imprecise timing, your Alaskan Arctic Gas can see the Prudhoe lateral--

MR. GENEST: Leaving out the imprecision, it's precise.

THE COMMISSIONER: Well, carry on Mr.Gibbs, I am interested in this.

MR. GENEST: I'm sorry, I interrupted. I apologize.

MR. GIBBS: Your Alaskan Arctic Gas Company sees the Prudhoe Bay lateral as carrying as high as 9 billion cubic feet per day.

A As the range there, as I understand it, was --

Q Was two to four.

A -- two to four. If it was two, it would simply have loaded the existing facility.

Q Yes.

A And this they said in a period of 20 years.

Q They said sometime within the next two decades.

A I don't think that's inconsistent with what I have been saying.

Q Sir, on the pipeline sizing.

A Yes.

Q I am wondering why you would deliberately oversize the Prudhoe Bay lateral, making it 48" and the Mackenzie Delta Lateral at 48" and not also oversize the main line from Travaillant Lake south. If you are sufficiently confident of the two laterals, why not of the main line?

A Well, I can't follow your question. How do you suggest oversizing the lateral, the main line south of Travaillant Lake? Putting two in before you needed to?

Q Or, sir, putting in a larger line than 48", wasn't that under contemplation at one time by Arctic Gas?

A Well, our assessment in my testimony was that at the state of present technology, the most efficient sized line in our opinion that one can build today is the large diameter line, the 48" diameter line with the high pressure that we suggested in here. Now, if that is correct, then the only thing that we would do beyond that would be to build two at the same time and that to me would not make much sense. You would not build the second one until you knew you needed it.

Q Well,isn't that what you have done in the laterals to the north, you

are going to use them only to 50% capacity?

A No, we have to have laterals of one kind or another, one size or another to move gas from those respective areas. You don't have to have two lines south of Travaillant Lake to move that combined volume. You do have to put in two pipelines, however, one to get to Prudhoe Bay and one to get to Mackenzie and those we did oversize for the reasons that I stated.

Q Well, sir, as I understand it from Mr. Brackett's testimony and I can read it to you if you wish, the pipeline sizes south of the 49th parallel are for a capacity of 6.2 billion cubic feet per day.

A Did Mr. Brackett also go on, because I would be surprised if he didn't that those facilities that were put in those initial applications were based on the assumptions that you have quoted earlier this morning and those lines are in the process of being resized and will be resized and set forth in those applications to correspond with the volumes of gas actually contracted for . At the stage of the initial filing only assumptions could be made and the people -- let's say Northern Border Pipeline on their assumption sized the line assuming that they were going to be successful and buy all of the Prudhoe Bay gas. Those customers on the west coast of the United States also assumed that they were going to be -- they weren't going to

put in a line and assume that they couldn't handle all of the gas if they acquired it. Now, the facts are that the gas is being split and we discussed that this morning and it will be absolutely essential that those lines to take gas from the Canadian border and those respective markets will be sized to fit, be sized down to fit the volumes of gas that are actually going to those markets.

Q Well, sir, when you size those down to fit the actual volumes and you have the main line south from Travaillant Lake to fit the actual volumes, I don't understand why you do not have the lateral size to fix the actual volumes.

A Well, I think that is a good question and I think that there will be a good deal of debate on that, as again I don't know how I can explain the judgmental factor that we put into that, better than we did. We have filed alternates to that. It may well be that the regulatory bodies charged with the overall approvals of the project will decide that we have oversized, that the economics are such that the customers should not pay for that oversizing in the initial years for possible future benefits or environmental benefits in the future and that is why, sir, we put in the alternatives, but still our judgment is that we think, and we will be prepared to build it smaller, our application is to build it, as I suggested for

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the reasons I suggested.

Q All right, sir, will you go to your prepared evidence , page 7, please.

A Sorry?

Q Page 7 of your prepared evidence.

A Yes, sir.

Under "Pipeline Sizing", the second sentence you say:

"Generally providing gas volumes are available to justify its sizing, the larger the diameter of a pipeline, the more efficient or more economical the transportation of gas through such a pipeline becomes."

A Yes.

MR. GENEST: I might say, Mr. Gibbs, that he added to that in his oral testimony, the pressure factor.

MR. GIBBS: I'm sorry, I don't follow.

A In my direct testimony at the end of that sentence I added that the pressure, of course, of the pipeline, the capability of the pipeline pressurewise was also a factor, not simply size.

Q And you state that, sir, as a generalization because whether in fact the results depend upon such things as the availability and the location and cost of steel.

A It depends on a great number of factors.

Q And the availability and location and cost of rolling mill capacity.

A Yes.

Q And the cost of transportation and handling.

A Those are all taken into account in arriving at those economics.

Q And the cost of construction with the larger heavy size.

A Yes; and of course the increased capacity that one gains with those additional expenses.

Q And the cost of fabricating the fittings to go with the line.

A Yes sir.

Q And the cost of capital, because the larger line is clearly the more expensive.

A I don't know really whether that affects the cost of capital. If it makes for a more efficient system, the cost of capital, I suppose, could be less.

Q And the demand and supply of gas.

A Very much so.

Q And sir, none of those items that I have listed are known for your project, are they?

A They are -- we've made estimates with regard to all of them, and that's all we can do until we actually order the equipment, transport it there, you can make your best estimates based on quotes given to you, cost of transportation, the cost of laying pipe, all of these things are things, as you well know, are estimated in the construction of any pipeline. You estimate them, and they're relative in any event, you estimate them, if you're sizing a line, even though they may not all be hard facts.

You estimate them on a relative basis, looking at 30 inches, 36, 42, 46, any one of them, and then you pick the one that you believe is going to result in the best economics. That's what we did.

Q And it may well be, Mr. Horte, that the economies of scale which are claimed for the larger diameter may not be there.

A I don't believe so.

Q But that may well be, may it not?

MR. GENEST: He just said he didn't believe so. What is the gain by repetition?

MR. GIBBS: I didn't ask him to confirm that it was or wasn't.

Q You have nothing more to add, Mr. Horte?

A No. This is our belief, that's how we arrived at it, we thought this was, as a result of our studies, the most efficient system.

Q Now, sir, as I understand it, there is yet to be determined by your Management Committee, and this determination will not be made until after your project has either been certified or -- well, until after it's been certified -- these items: The size of pipe you will use in the northern laterals, is that correct?

A That maybe, as I mentioned earlier, a consideration, depending on the circumstances.

Q I thought I heard you

tell your counsel yesterday that the decision on whether to go up to 42-inch would be made after certification and before construction.

A I think we'll review the situation then, yes.

Q And that's when that decision will be made?

A Pardon?

Q That's when you'll decide whether to use 42 on the northern laterals or not.

A Very likely, yes sir.

Q And you will not, therefore, know what the capital cost of the project is until after certification.

A Well, you won't know. We will get quotes obviously for both sizes, so we will know at that point in time.

Q But you won't know the actual capital cost until you know what pipe size you're going to use.

A Very well, yes, I agree.

Q Right, and it then follows that you won't know what the tariffs are going to be because you don't know what the capital costs are.

A Well, you will know the situation, you'll be looking at the situation for each sizing trying to arrive at what is the most economical tariff all circumstances being considered.

Q Yes sir but -

A You won't know the final answer, no sir.

Q Yes.

A Until that time.

Q And until certification you won't know the source of the pipe that you're going to use.

A I would think we might very well know the source prior to that.

Q Well, would you expect the source to be the same whether you use 48 or 42?

A It may well be the same or it may be different. We may have quotes for either direction, and a firm situation that can be firmed up with six months' notice with no place blocked out.

Q And that you will not do until you have certification.

A You won't actually place the orders till then, but you may have your complete arrangements made ahead of time, with options to go either way.

Q And, sir, it won't be until after certification that you will know your transportation logistics, will you?

A Well, I think we will have a very good handle on the transportation logistics. That's one of the detailed -- some of the detailed work that I mentioned in my testimony that is going

on so that we will at that moment in time have a very good handle on precisely how we're going to move the men and materials.

Q But doesn't that turn on whether your pipe comes from Japan or Germany or somewhere else?

A Yes, but you can certainly cover the options in that connection.

Q Yes. Well, you'll have all sorts of options but you will not know the exact transportation logistics until you've placed your order, which is after you've got your certification.

A That could be. I think we'll know it in the main well ahead of then.

Q And because you won't know what pipe sizes you're going to use, you won't know the timing and location of looping any more precisely than now, until after certification.

A We might have a greater insight with the additional development that takes place.

Q But it will turn again on whether you use 42-inch or 48 on the laterals.

A Yes, but I think in arriving at that decision it will also give you a clue as to the future looping as well.

Q And as I recall the evidence of Mr. Dau, you won't know the precise line location, the survey,exact surveyed line location until after certification.

A That is correct.

Q Then, sir, there's really not much that you will know about the project before certification, is there?

A I wouldn't agree with that.

Q Well, you don't know where the pipe is coming from, what size it's going to be, what it's going to cost, what the tariffs are, what the logistics are.

A You may not know all of those things to the nth degree of precision, but you fundamentally know the overall outcome by looking at all the options and the extremes that you might be faced with.

MR. GIBBS: Mr. Commissioner, because of our meeting at lunch I did not again have time to work on my mathematics. Perhaps I could make way for someone else now at this time and ask for the opportunity to, if I find any brilliant results from my mathematics, to talk with Mr. Horte about it tomorrow.

THE COMMISSIONER: Yes, certainly, Mr. Gibbs.

MR. GIBBS: Thank you, sir.

MR. SCOTT: Mr. Templeton, I think, is rather anxious to go out of order because of his transportation plans.

CROSS-EXAMINATION BY MR. TEMPLETON:

Q Mr. Horte, in the utility

regulation field, you've had considerable experience in the Oil and Gas Conservation Board as a regulatory body, and I'm not sure that's the right name of the body at the time you worked for it, but it's an Alberta regulatory body, and then some 15 years with Trans-Canada Pipeline as a regulated utility, and since then as president of Canadian Arctic Gas Study Limited. Am I right in assuming that most regulatory bodies require a public utility to prove its case in such things as feasibility of the pipeline, economic viability, rate base and rate of return? It's up to the utility to prove that.

A Yes.

Q And that if it does not prove its case, it runs the risk of having its application turned down because it wasn't adequately submitted?

A Yes sir.

Q Well, do you consider that a similar onus is on the applicant for the prediction of environmental impact?

MR. GENEST: No, Mr. Commissioner, I think that's a legal question. It's a question that's for you to determine. It's a question of argument. I submit that that's not a proper question.

THE COMMISSIONER: Do you have anything to say about this, Mr. Scott?

MR. SCOTT: I think that observation may be technically correct, Mr. Commissioner.

Perhaps Mr. Genest will answer the question. I'm sure that would satisfy Mr. Templeton just as well.

MR. GENEST: We have an onus in the pipeline guidelines that are there. We have to establish that we have taken proper measures. I accept that. We contemplate taking them. I don't know that that gets us anywhere, sir.

THE COMMISSIONER: Does that get you anywhere, Mr. Templeton?

MR. TEMPLETON: I'm not sure that it does. I think the whole matter of onus of proof, is the onus of proof on this Inquiry, or is the onus of proof on the applicant in the matter of prediction of environmental change?

THE COMMISSIONER: Mr. TEmpleton, that is a very important question, but I really don't think that it is going to be helpful to put the matter to Mr. Horte. Suppose he says no, the onus is on the Inquiry, or suppose he says yes, the onus is on Arctic Gas. It depends on the pipeline guidelines and on the arguments that all of you gentlemen will be putting forward in due course. But I think that the point that Mr. Genest is making is that if you are allowed to put this to this witness, it is a question that could legitimately be put to every witness and then someone might suggest at the end that I should add them up on each side and see who has got the big battalion .

MR. LUCAS: Mr. Commissioner, if I may put in --

THE COMMISSIONER: Yes.

MR. LUCAS: -- a comment on this --

THE COMMISSIONER: This is an important question, shed any light on it if you can.

MR. LUCAS: Isn't what Mr. Templeton is really getting at whether the company regarded the matter of environmental impact prediction on an equal footing with the other economic and financial matters that Mr. Templeton listed. Isn't he really asking the witness for an opinion on that which it seems to me

would be quite proper.

MR. GENEST: That is a different question.

THE COMMISSIONER: Well, there is no shortage of advice around here.

MR. TEMPLETON: I think I was better able to talk about those engineering figures this morning than what I am doing now.

MR. GENEST: No objection to Mr. Lucas' question. I want to assure Mr. Templeton I'm not discriminating because he's not a member of the bar. I have a high regard for him.

MR. SCOTT: He's not as well financed, either.

(LAUGHTER)

THE COMMISSIONER: Speak for yourself, Mr. Scott.

MR. GENEST: Thank you, sir.

MR. TEMPLETON: Perhaps I can tackle it this way. Perhaps I'm wrong but I'll try it and hope that you'll accept it as an honest effort.

Q Since this is a Commission of Inquiry not performing a regulatory function, and there are government bodies -- the Department of Indian & Northern Affairs & Development, the National Energy Board, Environment Canada, and the Territorial Government who do have regulatory functions, and will continue after this Board is finished, have you, Mr. Horte, indications from the Federal Government

what organization or organizations will perform the usual regulatory functions of approvals and controls regarding environmental matters?

A No, I really don't. We would hope and expect that it would not be a proliferation of various agencies but that somehow this job if you like, of monitoring or controlling would come under one authority, albeit that maybe there were a lot of inputs from other authorities, but I can't think of anything worse, really, in trying to proceed with a project, really know what it's costs were going to be, finance it, etc., if we were in a situation where there were a multiplicity of authorities, possible conflicts between authorities, and all that that would entail. Certainly I think that my understanding is that this has created some real problems in connection with the Alyeska project, this very thing.

THE COMMISSIONER: Well, Mr. Horte, you say that from the point of view of Arctic Gas you wish to see one authority that you have to answer to regarding the construction of the pipeline.

A Yes sir.

Q You compared it with Alyeska. Is the problem there that there are two levels of government involved, is that what you meant, or various departments?

A That's part of it, and then as I understand it, in the right to proceed with particular segments of construction, etc., there are many, many agencies that have to review those before

specific plans are ultimately approved, and this is a very time-consuming thing, and there is, you know, you get into a situation where all sorts of agencies look at re-designing the facility, etc. etc., and one of the great problems with that is that time is of such an element in costs, etc., that I think there would be real dangers, frankly, if, judging by that experience when you're trying to finance a project, if this appeared to be some sort of a morass in this area, if there wasn't some one entity that you were accountable to, that you could deal with.

MR. TEMPLETON: Well, you have undoubtedly had a great deal of discussions with the various regulatory bodies in the Federal Government, and the Territorial Government. Do you not have any indication at all on who is going to -- who the plans are to regulate and consider engineering feasibility, rate base, rate of return?

A Well, I think many of those items clearly would come under the jurisdiction of the National Energy Board. I guess it's when you get into the environmental areas and areas like that where the line becomes less distinct, and I really don't know what the answer to that is.

Q How about the national and economic and social impact, would you know what -- would you hazard a guess as to --

A I'm inclined, certainly this is an area that the National Energy Board hears evidence on, the impacts of -- the public interest

aspects of projects is certainly something that comes under their jurisdiction.

Q The social impact?

A I think they interpret their -- certainly their regulations as also encompassing that.

Q How about northern economic and social impact, the northern region?

A I think frankly they feel that these are all factors that they do have to consider under the broad public interest aspects that they are charged with taking into account in the certification of any facility that comes under their jurisdiction.

THE COMMISSIONER: Well, I'm going to intervene at this stage. We now have Mr. Horte telling us how the National Energy Board conceives of its mandate. I'm a little bit concerned about that. What was -- I thought that question that you finally did put, Mr. Templeton, was an interesting one, and I thought Mr. Horte's answer was equally interesting. That is, he said that Arctic Gas would prefer to be answerable to a single authority for the construction of this pipeline. I'm curious to know whether that's the view of the Environment Protection Board as well?

You don't have to tell me now, but I'm interested to know whether after 2 1/2 months we have reached any common ground in this Inquiry.

A Well, in the hearings on June 2, 3, and 4, we will certainly be saying that with a great deal of emphasis.

THE COMMISSIONER: I see.

MR. TEMPLETON: Or trying to. But my problem is -- and I realize these questions of how is the government going to react, it's really not fair to ask Mr. Horte, but the government is not represented and yet it's one of the -- can have almost as much effect by its actions as the applicant, and perhaps not as much but --

THE COMMISSIONER: The National Energy Board isn't the government. They're an independent agency, as I understand the National Energy Board Act.

MR. TEMPLETON: It reports to the Minister, though.

THE COMMISSIONER: Oh, all right.

MR. TEMPLETON: My problem is I don't know who to ask, you see, and so I asked Mr. Horte.

MR. SCOTT: That was certainly what Mr. Genest told us. If we didn't know who to ask on the Board we could ask Mr. Horte.

MR. GENEST: He's got his bag upstairs. That wasn't in it. I do suggest, sir,

that it's,with respect, I don't think we're going to get anywhere by substituting Mr. Horte for the government, Mr. Templeton's questions to ask of the government. He may have some problems, but Mr. Horte is not going to solve the problems.

THE COMMISSIONER: Well, carry on, Mr. Templeton. Each of your questions is preceded by one of these discussions, but the questions are still good questions. We pick and choose among them.

MR. TEMPLETON: Thank you.

Q Mr. Horte, when do you expect to receive the environmental reports from your consultants on the Simpson re-location? I think you said this morning that it would be this year, but I was wondering if you can be a little more precise?

A Well, sir, I was talking this morning about the cross-delta --

Q Oh, I see.

A -- environmental reports.

Q But I believe in the geotechnical panel they said that they were going to do geotechnical studies on the Simpson re-location.

A I honestly don't know, sir. Maybe somebody else here does.

Q Well, do you consider the environmental impact which was put in the -- which was included in the exhibit on the Simpson re-location an adequate environmental impact assessment? Or are there more studies yet to come?

A I would have to -- I couldn't respond to that question at the moment. I would have to -- I could give you an answer to that, I think, after I've checked with some of our people. I don't know if there is additional to come on that particular one or not, honestly.

Q I think the question I'm getting at is that if they are not --

MR. GENEST: Maybe I can help, Mr. Templeton. Mr. Williams, who is a fount of all knowledge, says that there are more and they should be ready this fall.

MR. TEMPLETON: Well, yes, can he be a little more specific about "fall"? You see, my reasoning is that I read in the newspapers and even in the transcript that people are having some difficulty being financed, and perhaps there is some kind of a target date around the end of the year to finalize the hearings, and perhaps this is improper for me to say so, but what I'm trying to say is are there judgments going to be made based on all of the information, or are the reports going to be coming in after the hearings are over? I'm not talking about data reports, now, I'm talking about opinions. Data reports plus opinions, on which will be filed with the Inquiry and on which judgments can be based.

A Well, I would think, sir, that we would have to support with data the opinions that we have, let's say, with respect to the Fort Simpson route, before this Inquiry is over, to the

extent that we haven't already done so.

THE COMMISSIONER: Well, you'll certainly have to support with appropriate environmental impact evidence any proposal to bring the gas pipeline across the mouth of the delta.

A Yes sir.

MR. TEMPLETON: I was coming to the delta first, but there is the -- what I was trying to find out whether -- I think there are about four pages in your exhibit showing the Simpson re-location regarding environment, and I was wondering if you considered that was all that was going to be done, or if there would be more, as a matter of --

A As I understand, not from my own knowledge, just from what's been said, there obviously will be some more, and I think Mr. Williams said by this fall.

MR. GENEST: There will also be environmental witnesses called who will be expected, I am sure, to be able to support the Fort Simpson route change with environmental evidence, and be subject to cross-examination on it.

MR. TEMPLETON: Well then, could we go to the cross-delta route, and I don't want to get into the details of it, but I was wondering when you expect to have the environmental and social studies published or available on this route? Preferably because of this end of the year indication, time is getting pretty short and to do studies, to publish them, and get them into the hearing process

is quite time-consuming, and I was wondering if you had target dates for doing that?

A Well, I think that the basic, my understanding is that the basic environmental work, the additional information that we believe is necessary will be done this summer, and then that data will be available and will be the basis upon which we can base what we think will be the environmental impact of that routing, and bring that forth in evidence before this Commission.

MR. GENEST: I might add, sir, that before we do that, we hope to be in a position to file, I hope in June, a document similar to the Fort Simpson amendment document which at least brings you up to date on our present state of knowledge. We have disclosed in our list of documents some fairly extensive preliminary environmental studies which are available for inspection relating to the cross-delta alternative route. What is being done is to up-date and bring that information into a better degree of certainty, so there is considerable information available from those reports to date, and there will be more available in June, I hope, under our present schedule of getting the matter ready.

MR. TEMPLETON: Yes, but this comes back to the original question I had some trouble with, is that I realize you're putting into the INquiry from time to time information, and what I am having some difficulty knowing is when do you say, "I've now got enough information that I can make

an environmental impact assessment and this is the opinion on which -- on the data on which I base my opinion that it's acceptable or it's not acceptable." The continual addition of information beyond the Inquiry doesn't help that much. So if there is an indication that the Inquiry is going to be over by the end of the year, then you need to back up that time and say, "I have to have my studies in by some date," and I would suggest that perhaps early in September might be about the latest you could have those reports to get them in and considered before the Inquiry was finished?

A Well, I can't put exact dates for you, sir, but certainly it's our intention to get that information, or the results of that information so that we can present the impact for the two areas you mentioned, early this fall, I think, you know, very shortly following the completion of the work. Maybe there will be reports or biological reports that take further time to complete, but I think the results of that work will be known and can be testified to, before this Commission.

Q Have you been able to date of conducting summer work, summer field investigations and have the reports in and completed by the end of the year?

A I can't answer your question. I am confident that we can get the results of that information before this Commission shortly after -- very shortly after the work is completed.

Q But --

A And we think that work will be completed in August sometime.

Q But isn't this -- wouldn't it be necessary to have this in some kind of a document so that people could study it and read other references and give it the consideration that's needed, rather than just to present a verbal opinion at a hearing?

MR. GENEST: We accept, sir, that we are going to have to provide adequate information to all the parties in connection with the cross-delta route so that it can properly be assessed, and we run the risk if we don't do it of saying -- of the Commissioner saying, "We don't have enough information and I'm not going to consider the cross-delta route," so it seems to me we have an interest in providing that information and providing all the parties with an adequate opportunity to examine it, and it's our intention to do so.

MR. TEMPLETON: You're accepting the burden of proof then.

MR. GENEST: We can argue that later.

THE COMMISSIONER: Do we have any tea or coffee out there? How does that strike you?

MR. TEMPLETON: All right.

THE COMMISSIONER: We'll take a short adjournment.

(PROCEEDINGS ADJOURNED TO MAY 23, 1975)

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MACKENZIE VALLEY PIPELINE INQUIRY

IN THE MATTER OF AN APPLICATION BY CANADIAN ARCTIC GAS PIPELINE LIMITED FOR A RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS CROWN LANDS WITHIN THE YUKON TERRITORY AND THE NORTHWEST TERRITORIES FOR THE PURPOSE OF THE PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION, OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Yellowknife, N.W.T.

May 23, 1975.

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Mr. Russell Anthony, Prof. Alastair Lucas	for Canadian Arctic Resources Committee;
Mr. Glen W. Bell and Mr. Gerry Sutton	for Northwest Territories Indian Brotherhood and Metis Association of the Northwest Territories;
Mr. John U. Bayly	for Inuit Tapirisat of Canada and the Committee for Original Peoples' Entitlement;
Mr. Ron Veale and Mr. Allen Lueck	for Yukon Native Brotherhood;
Mr. Carson H. Templeton	for Environment Protection Board;
Mr. David Reesor	for Northwest Territories Association of Municipalities
Mr. Murray Sigler	for Northwest Territories Chamber of Commerce

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Yellowknife, N.W.T.

May 23, 1975.

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. SCOTT: Mr. Commissioner, it's become something of a tradition for us each Friday to devise a task for Mr. Williams to perform over the weekend so that he will be fully occupied, and I've mentioned this to Mr. Genest and our staff would be grateful, and this isn't required until we next meet in June, or at all if the task is impossible, but we would be grateful if Mr. Williams could prepare a diagram like the construction diagram that he prepared before, showing the disposition of equipment, materials and pipes in the event of looping on a cross-section of line. You will recall the diagram he did earlier that showed the spoil pile and the equipment, all within the right-of-way. What we would like is that diagram showing the additional 15 to 20 feet that will be required, to which Mr. Horte referred, and the disposition of equipment in the event of looping.

I would also like to remind Mr. Genest -- I know it's unnecessary -- that there are a number of undertakings in the construction and O. & M. panel, and we would be grateful if we could have some response to those, if possible, before we meet at the formal hearings in June.

MR. GENEST: I'll look into these, Mr. Commissioner.

THE COMMISSIONER: Yes. Would

you look into one for me too, Mr. Genest? You will remember that diagram that Mr. Dau produced which I mistakenly relied upon as showing that if the curve representing the second winter of pipe-laying there would be almost 10,000 men at work; Mr. Williams pointed out yesterday that I hadn't appreciated that that covered the whole of the project within Canada. I wonder if Mr. Williams would prepare a similar diagram, but cut it off north of 60 so we have the graph with the curves and the figures it reaches on the scale representing the number of workers employed north of 60, and then we can segregate that from what occurs south of 60?

MR. GENEST: I'm sure that will be possible, sir. We'll do that.

MR. SCOTT: You'll want yours by Monday, will you, Mr. Commissioner?

MR. GENEST: Beg your pardon?

MR. SCOTT: I'm wondering if the Commissioner will want his by Monday.

THE COMMISSIONER: I want it by Wednesday in Hay River, at the latest.

MR. GENEST: Was that a serious comment, sir?

THE COMMISSIONER: No.

MR. GENEST: Mr. Williams hasn't had a weekend off since since February.

THE COMMISSIONER: When we come back, June 2nd, that's fine.

MR. GENEST: We'll have it as

soon as possible.

VERNON L. HORTE, resumed:

CROSS-EXAMINATION BY MR. TEMPLETON (CONTINUED):

Q Mr. Horte, when the lights went out I think we were discussing what environmental studies were being conducted now on the Fort Simpson re-location,environmental studies now; on the Fort Simpson re-location and also the cross-delta route. Do you know what environmental studies are being conducted in each of these possible route changes?

A I can't give you the specific studies, no sir.

MR. TEMPLETON: Do you suppose Mr. Williams, having a free weekend, could give us a list of these studies -- and I don't think it has to be the weekend, but it might be -- it would be very useful to us if we had this by June 2nd when we will -- the Board will be discussing the environmental impact?

MR. GENEST: I'm told we can do that, sir. We can have it by a week Monday.

MR. TEMPLETON: Well, could you also supply an estimate of when the environmental complete reports will be available, and I mean by the word "complete", I mean not only the data reports of the researchers, but the opinions of them as to

environmental impact and means of controlling impact? Is that possible too?

MR. GENEST: Well,I don't think I can answer that today, sir. We just have to see what work there is to be done. Some of this work depends on whether you can do it or not, if it's animal work the animal has got to be there, and he doesn't comply with orders-in-council. I'll just have to see whether we can give an estimate or not.

MR. TEMPLETON: Well, my concern about these dates is that the time is very short to conduct these studies, and as you say, they include seasonal migration of fish and birds and other animals, and it's usual to include the fall season when you're doing such a report, and I'm concerned about whether these reports will be written by the end of the year, and then after they're written, my understanding would be that they would have to be incorporated in some kind of an impact assessment, putting all of the research reports together to form an impact assessment; and this again takes time and I'm quite concerned about whether it's even reasonable to expect these to be done by the end of the year, and I really think that if it can't be done, that the Commissioner should be told now.

Do you agree, Mr. Horte?

THE COMMISSIONER: Well, I think that everyone probably agrees Mr. Templeton, but Mr. Genest has said he can't tell us now when these reports will be ready. I am certain that if Mr. Genest discovers they cannot be made ready until past the end of the year he will advise the Inquiry. I really don't think you can go much further with this, Mr. Templeton.

MR. TEMPLETON: All right.

Q Well, supposing, and perhaps if I am out of line, Mr. Commissioner, you will tell me, but supposing for one reason or another these reports including the impact assessment that compiles them together are not completed by the time this Commission's work is completed, are there other governmental mechanisms that you know of which could deal with fairly major route changes such as the Fort Simpson and cross-delta changes?

MR. GENEST: Well, sir, the ultimate authority is in the Minister for a permit under the Territorial Lands Act and presumably he is going to look at it. I don't anticipate any such further route changes.

THE COMMISSIONER: I think these are matters of argument, Mr. Templeton, I really do. We don't have to have a witness sitting there to justify your making these statements. You can make

them without having someone there to bounce the statements off.

MR. TEMPLETON: All right, I will leave it at that.

Q Mr. HOrte, the various panels have submitted to this Inquiry many alternate methods of design and construction techniques which might and I emphasize the word "might" be used when they know the details of how they are going to build it. For example, you might or you might not build up a berm five feet high to provide superimposed load on frost susceptible soils. You might or you might not use gravel to -- gravel backfill to reduce erosion, and you might or you might not allow a minimum flight elevation of 500 or 1,000 feet during operation and maintenance because of possible disturbance to wildlife.

I recognize that your detailed drawings and your operational manuals are not prepared yet, and so you have difficulty being specific about what you will do at a particular time and a particular place, but how is this Inquiry going to be assured that the particular method chosen at that time will be the best for the environment?

A Well, I think what those panels have done is they have demonstrated the various techniques that can be used to avoid these problems and then they are going to zero in on the technique in the particular circumstance

that should be used, the most optimum technique, if you like, or the best technique. Obviously, this will have to have consideration for the environmental aspects as well. Many of the techniques we are talking about are related directly to the environment so the environment itself will be the major factor considered in arriving at the particular design.

Q Yes, I quite recognize that. But the problem that you are faced with, and I think the Commissioner will be faced with when he gives his opinion, is that we're assuming that there is -- that environmental change is limited by careful attention to the detail of design and control. But how is he going to assume that that is going to actually happen some years hence with different personel, different people and obviously people who will not have read the transcripts and are really not geared to reading books anyway, the field people -- perhaps that is unfair, but when a person is out on a job in the dead of winter, he is not, as a rule, conducting academic studies. So how is anyone -- and we are all faced with this problem -- and I was wondering if you could throw any light on it as to how do you assume what kind of control is given, when they get to the actual field?

A Well, there certainly will be specific design criteria that will be fixed for all the situations that one can anticipate in the actual construction of the project, and in the actual operations of the project. I think design manuals and operational manuals have been discussed at this hearing. These are going to be the basic guides. Now undoubtedly circumstances will arise that don't necessarily, in a particular situation, fall within the gamut of those guidelines, and those situations will have to be dealt with at the time; and obviously with time if you're looking down the road, that your procedures based on experience, etc., just like in any operation, will be continually improved. I can see no reason why a company operating through this area would do anything different than they were to do in any other area, and that is be in a constant situation of planning and improving on your operations or your construction techniques.

Q Will these design and operational manuals be presented at the hearings for discussion?

A I can't answer that question, sir. I don't know that they will be in that form during the course of the hearings.

Q Even if you did have a design manual, I assume you would incorporate those items that I mentioned under "might" earlier, about overflights and whether to use gravel or not, and as you get farther along in the designs you will

develop more closely -- close controls, but even by the end of these hearings there will be many things that will not be designed and so that you're still going to show, I assume, things that you might do, or the tools that the people -- that the designers might use in certain circumstances. But there is the whole problem of predicting impact. It comes back to it, that you have to predict impact before this is done to be able to say whether you think it's acceptable or not.

A Well, certainly you will have done that in coming up with these design criteria, because they will be based upon an assessment of those impacts, of the best way within which one can minimize those impacts. That will be part and parcel of this design, all the design features of the project, many of which have been testified to in this hearing.

MR. GENEST: Mr. Commissioner, Templeton, Mr. I think the record of the testimony of previous witnesses has made it quite clear that these design manuals are part of the final design process, and will not be prepared until certificates have been issued. I might add, sir, that the guidelines themselves -- I have in mind page 5 of them -- they contemplate a monitoring service set up by the government to ensure compliance, and as far as the company is concerned, that's what we expect is going to be the authority that ensures that we live up to what we have agreed to do.

MR. TEMPLETON: Well, I assume you're saying or pointing out that the mechanism that is going to limit this is -- are your design manuals which will come later, and a government authority that's fully conversant with all these and will be giving approvals throughout the whole operation.

Is that right?

A Well, I think the guidelines are pretty clear in this respect. They contemplate in any certification or in the obtaining of a right-of-way, an agreement which will contain within it certain conditions, an obligation upon the applicant to fulfill these conditions. Now the actual design manuals, etc., will undoubtedly not only have to take into account all of the things that we have considered, but any such conditions imposed, and those will have to be incorporated into these design manuals, etc., and as Mr. Genest has pointed out, those same guidelines provide specifically for our monitoring -- that is, the company itself monitoring the environmental and all the other aspects of the project, and contemplates a government monitoring agency to make sure that the conditions that will have been set down are in fact fulfilled.

Q Yes, I recognize your problem. The trouble is that the government agency has not been formed, I don't even know which department it would fall under or whether it will fall under three -- and if there is a fumbling in the back field at the government level, environmental problems can develop

because of that, and these environmental studies do take -- do go across laws, so that if you allow erosion to occur in one place, it may spoil the aesthetics and it may also cause siltation of fish. So -- looking at me--

THE COMMISSIONER: Mr. Genest is

A Well, I can't speak for government agencies or how they intend to handle it other than to say, as I said yesterday, it's obviously contemplated that there will be a monitoring agency by the government to see that the conditions under which a certificate is granted are fulfilled, and we would hope that that will come under one authority so that we do not have the kind of conflicts that you're contemplating, because we think that would become -- would make the task a very difficult one. Somewhere the buck has to stop.

Q Mr. Truman was the only person who had the sign that stops here, but I don't see that in Ottawa at the moment.

You had a number of consultants; I think most of the panel members to date except for operation and maintenance panel were consultants to your firm, and perhaps have limited tenure. Do you accept on behalf of Canadian Arctic Gas Study Limited all of the recommendations and undertakings that they have made?

A Well, certainly we work, as you know the work that they have undertaken has really been under our supervision, so that in the final analysis the recommendations and the application here as set forth reflects the thinking

of the applicant.

Q I see. I note in your policy statement that you now have two major engineering firms, Northern Engineering Services and Northcan Engineering & Management Limited.

A Yes sir.

Q And I assume that Northcan, who I don't believe has appeared at these hearings yet, but will by your statement conduct the construction management function under your company's supervision, and they will be called upon to implement many of the controls brought up at these hearings about environmental matters. Is that right?

A Well, maybe I should explain. They have been retained to do the detailed planning associated with the implementation of the construction plans that we have presented before this hearing. I won't go back through them in detail because I did try to in my direct testimony to point out the various areas and various assignments that they have, that they are undertaking for us. Certainly they will be bringing us up to the point in terms of that detailed planning so that upon certification we will be in a position to move ahead quickly without having lost time in this area.

We have not made a decision as to whether Northcan will be the construction managers. Their retainer is for this planning phase or this implementation of the construction plan. We have not made a decision as to whether they will be retained by us during the actual construction, whether we will undertake that ourselves or use Northcan or some other party to actually carry out the construction management.

Q Well, will you explain how -- supposing they do supervise the -- well, even the preparing of the construction plans, there will have to be used many of the techniques that have been discussed at these hearings and how -- what sort of mechanism is there to bring them -- bring all of these items of environmental matters into their design?

A Well, they are not doing design, sir. They--

Q They are going to do the control?

A Pardon?

Q Would they not be doing the control?

A They wouldn't be doing the control in terms of the environment and environmental matters, engineering, design. Fundamentally, their function as a construction manager would be to see that construction itself moves ahead without problems, but will be constructed is what is, as we have set out, is it will be constructed in the manner in which it was designed and we want to be assured that the construction does not result in something being built that violates anything in the design of the pipeline itself.

Q Well, my experience with engineers is that they sometimes have differences of opinion and what I was wanting to know is the mechanism that you were going to set out --

A Well, the mechanism will be that the control lies with CAGSL. There are so many facets to the construction of this project that we certainly aren't going to leave the decision making process on construction in the hands of just the construction people.

Q I see. Well, I think

that you have answered the question. CAGSL is going to keep control of that and if there are things that aren't being done that were promised at the hearings it will be the CAGSL people who will insist that they are.

A Very definitely.

Q In -- perhaps it is a small point -- but in that, I think it requires, wouldn't you agree that it requires a special attention or you have to address yourself, as this is a serious problem, because everytime you get a new group in you do get a different philosophy of how to do it and I think these have shown up in the evolution of the CAGSL studies by the various groups that have come up from time to time.

A Well, I think that you really have to look on the groups as really being an arm of CAGSL. I think again I pointed out in my direct testimony there are two routes to go. CAGSL could hire all these people with the same competence itself or it could instead hire consultants with expertise in these various areas, such as NES, NOrthcan and others and supervise their work to make sure that their work was sound, that met the criterias, etc , that CAGSL had set forth with respect to the project, so that really what you are looking at then, although once removed as fundamentally employees of CAGSL, but employees of these firms so that they have an ongoing situation when this project is completed that they still are associated with the

firm. We have the ability to draw on many people in this respect by being associated with these large firms and their participant companies, so it gives us a very great array of talent which would be very difficult for a company such as CAGSL to go out and hire at a stage when it in fact doesn't even know that it is going to construct a project.

Q Yes, I am not disputing that. I am merely trying to develop the idea and I think that you have answered it, that CAGSL is the one responsible and will have the staff to be able to judge on detail that have environmental significance.

A Sir, we can never turn over the ultimate responsibility to anyone else.

Q Okay.

A That responsibility must lie with us.

Q Will all of the commitments of Canadian Arctic Gas Study Limited be transferred to the operating companies? I think they are two corporate bodies, is this not right?

MR. GENEST: Well, I can stipulate that sir.

MR. TEMPLETON: Okay.

MR. GENEST: That goes without saying.

The applicant is Canadian Arctic Gas Pipeline and the undertakings are those of Canadian Arctic Gas Pipeline. I can assure Dr. --

MR. TEMPLETON: That is a study --

MR. GENEST: You don't need to be concerend about the two companies.

MR. TEMPLETON: Well, the studies though and many of these things were done by the study company?

MR. GENEST: But they are the same people.

MR. TEMPLETON: Well, as long as the commitment is by the-- whatever the final company turns out to be --

MR. GENEST: It is.

MR. TEMPLETON: Thank you. That is all the questions that I have, Mr. Commissioner.

CROSS-EXAMINATION BY MR. BELL:

Q Mr. Horte, on your written testimony at page 21 --

A Yes, sir. Yes.

Q You say that, " it is absolutely essential thatprocedures be set up to assure that the environmental and sociological parameters involved in the construction are adhered to and that the pipeline as constructed meets all the design criteria." Do I take it from this that Arctic Gas will establish such procedures?

A Yes.

Q And in some cases you will have inspectors on the job during construction to ensure that these procedures are adhered to?

A We will.

Q I'd like to refer you to Exhibit No. 55, it's the construction plan, Section 13-A of the application materials.

MR. GENEST: What page Mr. Bell?

MR. BELL: It's tab 13-A .6, page 27.

MR. GENEST: 27?

MR. BELL: Yes, under the heading, "Survey." You've described there five phases of survey activities: The control survey, the location survey, the construction survey, the as-built survey, and the legal survey.

A Yes sir.

Q And you say farther down that page under the heading "Criteria":

"The survey plan has been developed in accordance with the following criteria: Lead time between survey and construction is provided to allow for use of survey information in detailed design, clearing of brush for location and control surveys, access grading, equipment operation, and disposal of construction and camp wastes will be carried out in the same manner as equivalent construction activities. Brush disposal and cleanup will be done by

the appropriate mainline construction crews," and then we come to the part that I'm really interested in. You say:

"In each case, each survey crew will be accompanied by one or more inspectors whose qualifications and duties will relate to protection of environmental, archeological and where relevant, human socio-economic values."

A Yes sir.

Q Well, these environmental archeological and socio-economic inspectors, I take it they will be responsible for monitoring the procedures that we're talking about in your written testimony?

A Certain of those procedures, yes, dealing with our areas of expertise.

Q And I assume that part of their duties, at least those of the environmental inspectors, will include ensuring that environment protection legislation is complied with?

A I am sure that is true.

Q Well, I don't want to get into Phase 4 evidence, but I think for the sake of completeness here I'd like to ask you if you could tell me in a general way the kind of circumstances under which socio-economic inspectors would be used and the sorts of things they would be doing.

A Well, I think that can be, frankly, more appropriately handled or better handled during Phase 4; but certainly we see these people as

being on the construction sites making sure to the best of their ability that socio-economic impacts are being minimized, reporting on the problems that occur in these areas and actions that must be taken in order to avoid them. Obviously in accordance with, as best as one can in this area of socio-economics, pre-determine many of these things.

Q Well, suppose, sir, it developed that a particular community had a concern about a survey that was being carried out in their vicinity. Would the socio-economic inspectors go in and try and deal with that concern, or at least report on the concern so it could be dealt with?

A Yes.

Q I have here copies of two letters that I would like to put in the record, and I'm afraid I only have one copy so I'll read them so everybody can hear what they say. The first one is a letter dated May 12, 1975, from the Northwest Lands & Forest Services in Inuvik, and it's addressed to the Band Council at Fort Good Hope. It says:

"Subject: Planned Exploration Activity."

THE COMMISSIONER: What's the date?

MR. BELL: May 12, 1975.

MR. GENEST: This is a letter from whom to whom?

MR. BELL: From Mr. C.J. Cuddy -- at least I think it's Mr. -- Acting District Superintendent, Northwest Lands & Forests, to the Band Council at Fort Good Hope, and it says:

"Northern Engineering has notified the Northwest Lands & Forest Service of the Department of Indian & Northern Affairs of the company's plans to conduct a pipeline operation in the area north of Fort Good Hope. Information on the operation is appended with a map. Your Council's comments based on local knowledge of the environment and your use of the area in which the proposed operation is to be conducted would be of assistance in preparing environmental conditions for this operation."

He then describes how these comments can be transmitted to him, and says:

"Your comments on this proposed program would be appreciated by May 27, 1975."

And he enclosed a copy of a letter from Mr. D.M. Fox, Manager, Land Section, Northern Engineering Services Company Limited. I'm afraid I had to take this information down over the telephone and I forgot to get the date of the letter, but I'm told that it's early this month, and it's addressed to the Regional Superintendent, Northwest Lands & Forest Services, in Fort Smith, and it says:

"Gentlemen:

Northern Engineering Services Company Limited, engineers for Canadian Arctic Gas Company Limited, proposes to carry out a helicopter-supported pilot pipeline route location survey in the area shown on the enclosed map lying north of Fort Good Hope,

Northwest Territories, commencing on or about June 1, 1975. Accordingly, Northern Engineering Services Company Limited herein makes application for a land use permit and in support of this application we enclose the following:

1. Application form in duplicate
2. Project description in duplicate
3. Ten sets of maps showing the work area, colored in red.
4. Our cheque in the amount of $10.00 covering the application fee."

Then he describes how the superintendent can get in touch with him if he wants further information.

Attached to that letter is a document entitled:

"Application for land use permit,"

subtitled:

"Pilot pipeline route location survey."

And there are a series of headings on the application with a brief paragraph following each one. The first heading is, "Project description", and it says under this:

"Purpose: The project is to be undertaken for the purpose of verifying the accuracy of orthophotomosaic coverage of a 20-mile section of the proposed CAGSL pipeline right-of-way."

Under the heading "Work area."

"Commences at or near the north bank of the Hare Indian River near the settlement of

Fort Good Hope, and extends generally in a northward direction for a distance of approximately 20 miles, as shown on ten copies of a reference map and pertinent ortho mosaic enclosed marked in red."

Under the heading, "Work description,"

"Carry out a 5-foot cut line survey along the lines shown on the ortho mosaic. The work will be carried out by local workmen using chain saws, axes, etc., for hand clearing. The felled timber will be limbed, lopped, and laid flat on the ground."

Under the heading, "Campsites,"

"Two tent campsites have been tentatively chosen and are shown on the attached ortho mosaic. Each campsite should be utilized for approximately 15 days."

Under the heading "Personnel",

"11 men , including 1 supervisor, 1 pilot, 1 engineer, 1 cook, 1 bull cook, 2 chainsaw operators, and 4 surveyors."

Under the heading "Transportation",

"All movements of personnel and equipment will be carried out by helicopter. Wherever possible the helicopter will land in cleared areas or on water bodies. Should clearing be required, it will be kept to a minimum, consistent with safety requirements. No ground vehicles will be used."

Under the heading "Equipment",

"1 helicopter (Bell 206 Jet Ranger), chain saws, axes and other hand equipment and other camping equipment."

Under the heading "Time Schedule",

"Proposed to start on June 1 and to be completed by approximately July 1. However because of the vagaries of the weather we request that the permit cover the time period June 1 to August 31, 1975."

I am informed by the chief of the Fort Good Hope Band, that the Fort Good Hope Band Council opposes the granting of this permit, and further, that there is a movement in Fort Good Hope to boycott employment on the survey project. Now since there are no inspectors listed in the application, sir, I would like to know whether Northern Engineering Services is complying with Arctic Gas policy on this survey, and if they aren't, what steps you will take to ensure that they do.

MR. GENEST: Well, Mr. Commissioner, first of all, the passage from the application materials read by Mr. Bell had to do with the survey of the line itself as part of the construction project. This has to do with the long correspondence, that I have heard has to do with the field test of the validity of -- I forget how you pronounce the word -- ortho photo-mosaic method which I think we've heard evidence on was intended to replace the control survey because of new methods.

MR. BELL: Well, Mr. Commissioner,

it may be a test to the applicant, but I suggest that the risks to the environment are the same as if it were the actual project; that the fact that it is does not remove the fact that Fort Good Hope Community is not happy with it, and that the survey clearing will eventually become part of the right-of-way clearing. I think that the witness should be required to answer the question.

MR. GENEST: Well, could we have the question again, please?

MR. BELL:

Q The question was, is Northern Engineering Services complying with Arctic Gas policy and if they are not what is Mr. Horte going to do to see that they are complying with it?

THE COMMISSIONER: I think that is a good question.

A Well, I would certainly before responding completely to that question, like to talk to Northern Engineering Services. This particular matter has not come to my attention. This is the first that I have heard of it. It seems to me built right into that request as you read it were obviously a great many environmental considerations had gone into the designing of that request in itself. Now, that doesn't mean that somebody may not disagree with those environmental assessments that are obviously part and parcel of the requests; they are asking, as I understood it for merely a five foot cut line. They are going to use hand clearing which means a minimum of disturbance, certainly from that standpoint. They are going to be using helicopter support. They are not going to be running vehicles through there, so many of the environmental considerations undoubtedly have been taken into account.

Q Do I understand sir, that

this particular survey is going to be conducted in the same way that the actual location survey is going to be conducted?

A It may be very similar, yes.

THE COMMISSIONER: Well, Mr. Bell's point is that the correspondence doesn't reveal that, to use the words of the construction plan, one or more inspectors who will have duties relating to the protection of the environment, archaeological sites and social and economic values, will be accompanying the survey crew.

Now, that doesn't appear from the letters --

A Well, and that is the answer that I do not know, sir, except I would think that what we are talking about is --

MR. BELL:

Q Well, will you undertake, sir, to have environmental inspectors appointed?

THE COMMISSIONER: Let Mr. Horte finish. He was answering --

A I would think that NES would certainly be taking a responsible attitude on this thing with respect to the protection of the environment. What particular measures I am just not familiar with. I would try and get that information for you, but it is -- I think that undoubtedly they have set down criteria for those who are going to be doing this job. It is a small job and I think it

will be closely controlled if you want my opinion, but I need to verify that.

Q Well,I would like to know then what you intend to do to deal with the concern of the Fort Good Hope community; and I would like to suggest to you that there will be a good opportunity to deal with that concern when we have the community hearing in Fort Good Hope early in August, and I would like to ask you if you will undertake to have the survey delayed until that community hearing is held.

A I can't answer that question. I would have to find out more information.

THE COMMISSIONER: What is the date set for that Community hearing?

MR. BELL: It is early in August. I am not exactly sure of the date.

MR. GENEST: It might be helpful if we got some details of the concern. Rather than -- so we could study it.

MR. BELL: Well, if you would like me to put you in touch with the chief of the Fort Good Hope band I would be happy to do that.

MR. GENEST: We can arrange that with Mr. Bell.

MR. BELL:

Q Well, sir, does it surprise you that Native people would reject jobs

on a pipeline related project?

A No, it does not surprise me.

Q Why not?

A Well, they may for their own reasons feel that they do not want to see a pipeline built. If that were the case, why would they do something to co-operate in the building of that pipeline? I don't know that that is their situation, but it could well be.

Q I see. Does that square with the advice of your socio-economic advisors?

A I can't tell you, I can find out.

Q Well, can you tell me, sir, have any members of the Canadian Arctic Gas consortium ever been convicted of violations of Environmental Protection legislation in Canada or the United States?

MR. GENEST: I object to that, sir.

MR. BELL: I would like to know why.

THE COMMISSIONER: Well -- you said any what?-- members of the consortium?

MR. BELL: Any members -- yes.

It seems to me, sir, that this is a question which goes to the credibility of

the applicant's promises with respect to environmental policies, that since the applicant is -- I am sorry.

THE COMMISSIONER: No, carry on --

MR. BELL: The applicant is not an operating company, it has only been in existence for a very short time.

THE COMMISSIONER: Excuse me, Miss Hutchinson, have you got a moment?

MR. GENEST: Well, my submission --

THE COMMISSIONER: Carry on, Mr. Bell.

MR. BELL: Yes, I was saying that this is a question which goes to the credibility of some of the applicant's promises with respect to its environmental policies and since the applicant doesn't really have any independent record of its own in this area, that the only way of testing that credibility is to look at the records of those who own or manage it and assess the credibility of those promises in that light and I think that this -- well, as I said, this is a question which goes to the credibility of those promises.

MR. GENEST: Well, sir, I have never heard it allowed as a question relating to credibility, that you can cross-examine a witness, one of the chief executives of a corporate party on

the records of its shareholders. It would be another matter if Mr. Horte, himself, was party to any such transgression as Mr. Bell seeks to establish, but in my submission that is not a proper question.

THE COMMISSIONER: WEll, do you have anything to contribute to this, Mr. Scott?

MR. SCOTT: Mr. Commissioner, I am sort of thinking about it. Perhaps I can make two observations. First of all, it doesn't seem to me that Mr. Genest's objection, that somehow the corporate veil protects the determination of whether those discretions have occurred by principles of the consortium, is a very effective defense. Surely, at least in an Inquiry if not in the court, we are beyond that stage when the applicant is in fact not an operating company but a consottium of other and operating companies. That is point one.

Point two I would have thought, and I am sure that perhaps in reconsideration, the applicant might be prepared to answer that question with respect to specific legislation. If the question were restricted to Federal legislation or legislation in this Territory or in some adjacent province it might be relevant. Some of these companies have international operations and it would be difficult to go too far. The third observation is that even if the answer is given and it reveals that there are a number of convictions, I am not really certain to what use anybody will be able

to put that particular fact except to show that they have been convicted. It doesn't seem to me it is going to assist in the long run in determining what conditions should be imposed, if any, with respect to this application.

THE COMMISSIONER: I see Mr. Lucas pulling a microphone toward him.

MR. LUCAS: Well, I would just like to comment on the last point made by Mr. Scott, Mr. Commissioner. It seems to me that any information on convictions for violations of environmental legislation are extremely relevant to not only the question of whether the applicant is likely to live up to its guarantees regarding environment protection, but is also very relevant to the kind of regulatory arrangement that ought to be perhaps recommended by this Commission to ensure that the applicant does in fact meet environmental and socio-economic stipulations. It seems to me it is part of the information base that is relevant to any recommendations that this Inquiry might make.

MR. GENEST: Well, sir, I have one final -- I think that -- I submit very strongly that you are going to embark into dangerous waters; waters that are very hard for us to deal with. They are an attack, I submit, on the character of the applicant. Are you going to have a full scale inquiry, because one or two questions on this doesn't give you the answer. Is this Inquiry going to launch an inquisition into the good character

of all of the participants in the study group and it doesn't stop there, because you have to look at their executive officers. They have corporate shareholders, you have to look into their shareholders, they are artificial entities, as Mr. Scott, objects to the argument as to the corporate veil.

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You are launching into a major inquisition and I submit that unless you do that thoroughly you are not going to get much help from an answer that may deal with a couple of convictions of Gulf Oil or Imperial Oil, who may have been in breach of some land use regulations, or some environmental statutes and been fined for it.

This Inquiry, in my submission, is not an inquisition into the good character of the participants, their officers, their employees, and their shareholders.

MR. SCOTT: Mr. Commissioner, one other observation; surely one should look at the utility of the information that is going to be produced. You know, the question is not advanced to test Mr. Horte's credibility, as it would be in a Court room, and therefore one looks at the usefulness of the information that is produced. The only reason that is advanced for it is, I think, Mr. Lucas', it provides the information base for evaluating the commitment or promises of the applicant.

In my respectful submission, in considering it, that seems to me to be a relatively shallow submission. It seems to me that the function of this Inquiry is to prepare recommendations with respect to conditions, and if it deems advisable to prepare recommendations respecting the way those conditions might be enforced, in performing that exercise and in making submissions to you, for example, I will not be at all impressed by the fact that the

applicant's record is heretofore unblemished, and I will not be at all dissuaded by the fact that, if it is the case, that the record of one of the members of the applicant is blemished. In other words, it seems to me our function is to determine what the environmental conditions, if any, should be, and how they should be enforced, and that you will not be assisted by any information of a general type or even of a particular type about how members of the applicant have treated regulations or regulatory agencies, or indeed even positive law in the past. That won't assist you to draft the condition or to draft a scheme, and therefore there is, in my respectful submission, something in what Mr. Genest says. If the question is permitted it will amount to an embarkation on a very extensive voyage of discovery that won't stop simply with this kind of question.

THE COMMISSIONER: Anything to add?

MR. BELL: Well, with respect, sir, I think that Mr. Lucas' submission is not properly characterized as shallow, and that it seems to me that we've already had evidence of violations, at least if not of convictions, of environment protection legislation in the Northwest Territories which has been received at the community hearing in Aklavik.

THE COMMISSIONER: Well, I'm --I've been told by Mr. Horte that Arctic Gas consists of 18 member corporations and that each of these member corporations has a seat on the Management

Committee of Arctic Gas. It seems to me that we're not dealing with a situation in which widely spread -- a situation in which an attempt is being made to examine the record of a widely spread group of shareholders. We have a question which is put to determine whether any of the corporations which constitute the consortium and which control the consortium have violated legislative provisions for the protection of the environment in the past. I think that is relevant to the question that this Inquiry will in due course have to face. What terms and conditions ought to be imposed on any right-of-way if one is to be granted to Arctic Gas to build a pipeline; it relates to the question what the substance of those terms and conditions ought to be and what measures ought to be recommended to be certain that the terms and conditions imposed are in fact complied with. So I'm going to allow the question to be put. I should add that as far as I am concerned, I regard it as more important to clear up the question Mr. Bell raised earlier about the survey crew from Northern Engineering Services going into Fort Good Hope without there being any indication from the correspondence that one or more environmental inspectors will be accompanying the crew. Now it is all very well to say that in the strictest terms that survey does not fall within the construction plan, but it seems to me that if on the one hand we have Arctic Gas saying this very day at this hearing, through Mr. Horte that each survey crew will be accompanied by one or more environmental

inspectors, and at the same time we have a survey crew going into Fort Good Hope without any indication that any environmental inspector will be accompanying that survey crew, that's, as far as I'm concerned, something that goes to the whole question whether Arctic Gas is putting forward these statements of policy in the construction plan in a way that the Inquiry and the Government of Canada can rely upon. Both issues or both questions raised by Mr. Bell go to the same issue.

How far do we have to go to obtain compliance with measures designed to protect the environment? Whether enacted by legislation in this or any other jurisdiction, or whether undertaken as a matter of policy by the company itself. I would like those letters that you read out photostated and distributed to all the parties. I'd like to see copies myself, and I think that we should be advised, Mr. Genest, of the question raised by Mr. Bell, because it may be that the matter was omitted from the correspondence. Is there an environmental inspector accompanying that survey crew?

MR. GENEST: We'll do that, sir.

THE COMMISSIONER: Go ahead with your questions.

MR. BELL: I will have copies made as soon as I can and have them distributed.

Q Well, the question was: Have any members of the Canadian Arctic Gas consortium

ever been convicted of violations of environmental protection legislation in Canada or United States?

A I don't know, sir.

MR. SCOTT: That is a question that obviously has to be answered, because you have ruled; but I think in fairness it would not be inappropriate or inconsistent with your ruling for Mr. Bell to tell us what he means by "environmental protection legislation in Canada and the United States". I mean the problem here is, that if one is concerned about regulations passed by the Department of the Environment or the Energy, Mines & Resources in Canada or the Department of the Interior in the United States, that is one thing. If, on the other hand, one is concerned about municipal by-laws and a whole host of subsidiary regulatory authorities, it's very difficult to know what can be characterized properly as environmental protection legislation. I really ask Mr. Bell, rather than you, whether it is possible to narrow the scope of the question.

MR. GENEST: You may have missed Mr. Horte's answer, Mr. Horte said he didn't know.

THE COMMISSIONER: Yes, I'm sure he doesn't

MR. SCOTT: Can you imagine the next question?

THE COMMISSIONER: I had thought, Mr. Bell, in keeping with the practice that's normally used, that you would have had a specific instance in your kit bag and that you would have put them to Mr. Horte, citing the occasion, the company concerned, and the

legislation, and I think that you owe it to Mr. Horte to put it in that way.

MR. BELL: I have here a copy of Volume 3 of the"Canadian Environmental Law News" of April, 1974, at page 39 it reports a case in the Magistrate's Court of the Northwest Territories, Yellowknife, in which Gulf Oil Canada Limited was convicted for violating a condition of the land use permit which required it to construct sumps and pits in such a manner that the fluids contained in them could not spread to surrounding land, and the conviction led to a fine of $2,500. That took place in March of 1974.

Q Are you aware of that case, sir?

A No, I am not. I am now.

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Q I take it that you are not aware of any other cases of that nature?

A No, sir.

Q Well, sir, I understand that the applicant is requesting by way of legal title to land in the Northwest Territories an easement for the pipeline right-of-way, is that your understanding?

A We are requesting an easement -- I am a little confused between that and a legal title. -- Whether easement as such is -- I am a little confused between the terms legal title and an easement.

Q Well, I mean easement as an aspect of title, as a type of title.

A Yes.

Q And this also includes a request for timber rights on that particular area?

A Not to my knowledge.

MR. GENEST: Well, is it in the application, Mr. Bell?

MR. BELL: I think it is , I think that is where I read it.

MR. GENEST: The application is self-explanatory.

MR. BELL:

Q And for the above ground facilities the applicant is asking for a fee simple in the land that they will be occupying?

A That is my understanding.

Q Can you tell me what would be the term of the easement?

MR. GENEST: Who would be the what?

MR. BELL: The term. HOw long would it last?

A I expect for the life of the the facility, but I do not know whether that is filed in the application or not, whether I am absolutely correct in that.

Q I take it then that --

A It is going to be a long term lease, yes.

Q All right. --And this is the usual practice with most pipelines, I take it?

A Yes.

Q Can you tell me what will happen to the land when the line ceases to operate?

A Well, the easement would expire at that point and any rights to the use of that land by the pipeline company will have expired.

Q And the fee simple lands?

A The fee simple lands would remain in the ownership of the company. -- Unless otherwise disposed of by the company.

Q And I take it that it

is Arctic Gas's position that the pipeline will require 40 square miles of northern land?

A I think that is the approximation of the land use, yes.

Q And how is that figure calculated?

A I think by the width of the right-of-way times the distance plus the other land uses in the north: the compressor station sites, the other areas of land use in the north, and by totalling those and coming to an overall figure, estimate.

Q Any looping of the line would increase this area, wouldn't it?

A To the extent that the right-of-way or any additional land use was required it would increase it, yes.

Q And so would any additional lines that you built to accomodate future gas supply availability?

A Whatever additional land was required would add to that estimate, yes, sir.

Q At any rate, whatever eventual area occupied, it is a small percentage of the total amount of land in the Northwest Territories?

A Yes.

Q And I take it the applicant feels confident in its ability to negotiate for the use of this land with whoever

owns it?

A Yes.

Q Just as it would be done in southern Canada?

A Yes, sir.

Q But you would not claim, would you, that the impact of the pipeline is limited to this rather small area of the north?

A No, I wouldn't.

Q Indeed the impact of this project is likely to affect a very large segment of the Northwest Territories.

A I think that is what we are here testifying about, yes, sir.

Q I take it from Mr. Genest's comments the other day that Arctic Gas has done no studies specifically related to the socio-economic impacts of looping the line?

A No specific studies.

Q Well, I would like to refer you to page 12 of your written testimony. The very last sentence on that page. You say, "I think it also obvious that further impacts on an area already impacted upon will be of less environmental and sociological significance."

A Yes.

Q For those of us to whom it might not be quite so obvious, can you tell me upon what evidence you base that contention?

A Well, in terms of the

sociological significance it seems to me that the major impacts would occur the first time when this development and this -- and the attendant developments would take place because of this project -- first come into being, and that a great deal would be learned certainly in this process. The impacts would be something that would be handled during this process, would become -- people would become accustomed to and associated with it so that it wouldn't be something new, if you like, from that standpoint, untried in terms of the second loop and therefore, I -- or in terms of the looping and I would just normally anticipate, therefore, that the impacts would be of lesser significance than they would in the first instance. The statement has no more scientific approach than really that.

Q Well, I put it to you that it might well be just the opposite of what you are saying, that the impacts might aggravate whatever impacts were--accompanied the original construction.

A Well, that is an opinion that obviously you have, and I am certain that that -- during the course of this hearing that all of those opinions will be put forward.

Q Can you tell me, if it were made a condition of the grant of right-of-way, would the applicant conduct the necessary impact studies on looping?

A Pardon?

Q If it were made a condition

of the grant of the right-of-way, would the applicant conduct the necessary impact studies on looping the line?

A Yes, I would think so.

Q Would the applicant construct the line in the first instance so that looping would not be necessary at a later date?

A I don't think that is possible.

Q I take it that the answer then is, no.

A Yes. The answer is no.

Q During the testimony of the construction panel we were told that that the applicant intends to use the Mackenzie Highway to transport equipment and supplies for points between Hay River and Fort Simpson, is that your understanding, sir?

A Yes, it is.

Q Well, can you tell me, what is Arctic Gas's policy with respect to who should bear the cost of repairs to that road which are occasioned by this increased traffic?

A I don't think we have zeroed in on the policy in that area. I couldn't answer that question at the moment.

Q Can you tell us when that policy will be developed?

A Well, this may well be

something that is associated with our actual granting of a permit and the things that we will undertake in this regard. You know, I just don't know whether that should be a responsibility of the pipeline company or the responsibility of government. I am just not in a position to say.

Q Well, if it were made a condition of the grant of right-of-way, would Arctic Gas undertake to contribute to the cost of repairing that road?

A Depending on the costs, how -- if those were reasonable costs I am sure that we would. I am not saying that I agree that that should be done, but if that were a condition and the condition were not so onerous that we couldn't undertake it I would expect that we would do it.

Q I take it then that what you are telling me is that you will consider doing this?

A I think that we will have to consider any condition put upon us and decide then whether or not we can live with it.

Q Well, the applicant says that the existing barge system on the Mackenzie River will have to be expanded in order to accomodate transportation of the pipeline equipment and materials during construction, and can you tell me who is going to pay for this additional equipment?

A Well, I am certain that in the transportation arrangements that is made with whoever constructs that equipment that a great deal of the cost of that will be borne by Arctic Gas because we'll be the people utilizing it, and I don't know what the transportation arrangements will be, but certainly we will have to bear a cost for moving material on that equipment.

Q But the cost that you pay will not be specifically related to the construction of the equipment?

A I don't know that, sir. That's something that will have to be negotiated.

Q And who is going to pay for the other permanent facilities associated with the transportation and construction of the pipeline? For example, wharves, permanent roads, other permanent facilities.

A Well, I think the wharves and access roads and this type of thing that you're talking about, which are occasioned by the construction of the pipeline itself, will be the expenses to the Pipeline Company.

Q And do you have any plans for these facilities after construction is completed?

A Well, I think that these facilities, and a great deal will depend upon the future development, but if as we were discussing yesterday, in fact if one looks down the road that looping is

a distinct very likely possibility that these facilities would be maintained so that they could be utilized for that purpose, as well as operational purposes so that one has access to the existing facilities. I'm not saying that all of these facilities will be required for further use. I'm quite sure that the facilities that are constructed in this regard, if this is the point of your question, will be made available for use by others as well.

Q I take it that the applicant has no plans at this time to build lines to supply gas to northern communities. Is that correct?

A No specific plans.

Q Why is that?

MR. GENEST: Mr. Commissioner, well, this is a Phase 4 subject. I realize that you're going into Hay River next week where this, I'm sure, is a subject of interest.

THE COMMISSIONER: Why -- I don't want to be --

MR. GENEST: I'm not objecting, I haven't finished, sir. I'm sure it would be useful for Mr. Horte to state the company's policy on gas supply to communities. What I'm wondering about, sir, is whether we should get into at this stage, a long cross-examination as to that question, which is a large question, and which seems to be more appropriate to Phase 4. I think it would be useful to have on the record because of the

community hearing aspect of this Inquiry, that there should be a statement on record of the company's policy but it's a matter that could occupy many days and will no doubt do so in Phase 4. So I'm just trying to see some middle ground here, otherwise we'll be here for a long time.

MR. BELL: Well, sir, it's my policy not to spend much time on this question.

THE COMMISSIONER: Well then, I'd like to hear what Mr. Horte has to say about it, and I don't think we need be detained for a great long time with questions, but carry on, Mr. Horte.

A Very good, sir. Well, this is a subject that we have given a great deal of thought to, and a lot of thinking has gone into it, and therefore --

MR. BELL: I can't hear you.

A -- it is something that I don't want to answer off the cuff. I have a prepared statement, we think it is a very important subject and I'd like to read that into the record.

THE COMMISSIONER: This is quite impromptu.

MR. GENEST: We thought it might come up.

MR. SCOTT: Mr. Horte is obviously in cahoots with Mr. Bell.

A Well, as you know, Canadian Arctic Gas Pipeline Limited has investigated the economic feasibility of gas service to communities in the Yukon and Northwest Territories, which might

be serviced by the proposed pipeline. This study has been submitted to this Commission and shows that such service is presently economically feasible in many of the communities along the Mackenzie Valley, but not in all. Feasibility of gas service to any community of course, is a function of the size of the demand in the community, and the distance from the pipeline to the community itself.

Obviously in those communities where natural gas service is indicated to be a more economic means of supplying fuel to the community, we stand ready, willing and able to facilitate in any way we can, the service of gas to those communities. This can be done by our arranging for gas to be made available at a take-off point on the pipeline to any distribution company whether privately owned or governmentally owned which would provide the service to that community.

In this connection, where deemed desirable, we would be prepared to build the main lateral to the community and to charge a cost of service appropriate to that facility to the distribution company, which would be purchasing the gas, at the end of such a lateral.

The big question, of course, is the question of gas service being supplied to those communities which were on normal -- which on a normal economic basis this could not be justified. What should be done in this situation is a very complex problem. Some of the problems that have to be

considered in any such decision, in our opinion, are as follows:

1. Is it more desirable for that community to be serviced by natural gas than by some other form of energy such as the form of energy now servicing that community? In this connection one would have to consider the impact on the community if existing services were in fact discontinued, or greatly reduced in terms of the market being served by a particular fuel. In small communities, competitive service between fuels would hardly be justified.

2. In most communities fuel now servicing those communities is presently being subsidized by the Federal Government. If it is deemed that gas service is desirable for the community, then should this method of subsidization by the Federal Government be continued?

3. Should other customers of the major transmission facility in fact, through increases in their rates, subsidize the cost of servicing such communities?

The above points, I think, illustrate the fact that it is a complex question and it seems to us a question that must be answered by the government in the final analysis.

I can say that if it were the goverment's decision after considering all the factors that gas service should be made available to certain communities on a subsidized basis, and that the subsidization should be borne by other customers of the pipeline system, then of course we would

undertake to construct those facilities. We would include the charges associated therewith in our total cost of service, and our rates would be structured so that gas service to those communities would be available on a competitive cost of service basis with any additional costs for so doing being borne by other customers on the system.

That, sir, is our position with respect to our policy position.

THE COMMISSIONER: That is written out, maybe you could let Miss Hutchinson have it and she could photostat it so we could take a look at it.

A Sure.

THE COMMISSIONER: You might give those letters to Miss Hutchinson, too, and maybe at the break she can have them photostated, along with Mr. Horte's statement.

MR. BELL: Very well. Would this be an appropriate time for a break?

THE COMMISSIONER: Well, we'll see. Yes, it looks like it is.

(PROCEEDINGS ADJOURNED FOR FEW MINUTES)

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. BELL: Q Well, I take it, sir, in connection with the answer to the last question, that what you're saying is that if it were required as a condition of the approvals for the pipeline, that Arctic Gas is prepared to construct gas supply lines to communities that request them, and to supply the gas and services at a subsidized rate to those communities.

A Yes sir.

THE COMMISSIONER: Mr. Horte, in your written statement about gas to northern communities, you say that in your study, which I'm sure I've seen but I don't have it at my fingertips, you say,

"The study shows that gas service is presently economically feasible in many of the communities along the Mackenzie Valley, but not in all."

Do you have a list of the communities where you regard it as feasible, and the communities where you do not regard it as feasible?

A Yes. It's in that report, sir. I just have to get a copy.

Q It's that blue report?

A Yes, it is.

MR. GENEST: We can get that, sir.

THE COMMISSIONER: Yes. What you were really saying in answer to Mr. Bell is that if you were required as a condition of getting

your right-of-way, or as a condition of going ahead with the project, putting it generally, to provide subsidized gas to northern communities, you would. The subsidy would essentially be paid by the consumers of natural gas in Chicago and Toronto and so on, I take it.

A Yes, it would be -- what we suggest for our own pipeline is a cost of service concept, and then it would be a matter of structuring rates as it always is; rates that could land that service on a competitive basis in those communities, notwithstanding that the effect of that would be to somewhat increase the rates to other customers.

Q And at the trunk pipeline, let us say where it passes by one of these communities, you would have to reduce the pressure, I suppose, you'd have to meter it and then build a line into the community; is that -- those are the physical things you'd have to do, are they?

A That is correct, yes. We don't, as you will see from the statement, contemplate being involved in the actual distribution system in the community because certainly this is not our area of expertise.

Q Well, you would reduce the pressure; you would regard that as your function, leaving aside the question who pays for it.

A Yes. The pressure reduction equipment.

Q And then the distributor

in the north, according to your way of looking at this, could pick up the gas from there?

A Yes.

Q Well, when Mr. Marshall brings that report maybe we could just have a look at it and see what those communities are.

A Very good, sir, yes.

MR. BELL: Q I understand that the applicant has designed into its line already, valves at locations near some communities which would accommodate the kinds of gas lines we're talking about.

A Yes, we certainly will provide in our design, take-off points for gas to all those communities that it is deemed, you know, should be served with natural gas.

Q Just so I can be clear about the range of communities that we're talking about, and perhaps we can get a more specific list when Mr. Marshall returns. Would it include communities that were not directly within the window of the alignment sheet, as it were, within a short distance of the line? Say Yellowknife for example.

A Well, you get all sorts of variations, and this study, for instance, does demonstrate that, looking at the various communities and communities that are located some distance away from the line, for example, Hay River, Yellowknife and others. They are not in the immediate vicinity but the economics of transporting gas to those communities

and servicing gas in those communities has formed part of the study and we have estimated what the economics would be.

Q Oh, I see Mr. Marshall has brought the report.

A Yes.

THE COMMISSIONER: Thank you.

A I'll just take a moment sir. I think I can find the list of communities.

THE COMMISSIONER: There are people in Hay River and in all of these northern communities whom I am sure will say to the Inquiry, "How come the gas is more expensive delivered to communities in the Mackenzie Valley, which are closer to the source of the gas, than delivered to Chicago or Toronto?" There is a kind country logic in that, as Mr. Gibbs would say; you have to be fairly sophisticated, I suppose, to refute that. Anyway, I think these people in Hay River are going to be asking that next week and I'm curious to know which side of this list of yours they're on at the moment.

A They happen to be, sir, on the list that would have to be subsidized. If you turn to page 32 of the report, table 4.1, this shows the results of the studies with respect to those communities that we call the Mackenzie Valley communities, starting at the top at Inuvik, Norman Wells, Fort McPherson, Fort Simpson, Fort Good Hope, Aklavik, Fort Norman and Wrigley, and on the column -- the two columns "delivered cost of gas", you can see that

if the wellhead price of gas in the second column were 32¢ per thousand cubic feet, when one added the cost of transmission of a major transmission facility plus the lateral to the community, and the distribution cost within that community, you arrive at the price that gas would have to be sold at, as shown in that column, going from 87¢ in Inuvik all the way down to $8.25 in Mcf. in Wrigley.

On the far right-hand column is shown, in terms of heating value, the equivalent cost of fuel oil, which corresponds with those cents per Mcf. prices shown. All of this has assumed, as indicated by the footnote, that 50% of the potential space-heating demand is met by gas in the particular community, and that all the thermal generating units in those communities for electrical purposes would be converted to the use of gas, thereby increasing the load and improving the economics.

I may need some more time, sir, maybe during the lunch break to be more specific based on that table, which of those communities would appear to be economic, as I recall our estimation would indicate that it's economic up to an equivalent fuel oil price in the order of 85, what we anticipate fuel oil prices to be, 85 to 90¢, which would get you somewhere in the range of $6 an Mcf. for gas on that basis, looking at each community individually, and I'd like to check that. That would indicate on that table that on individual economics alone, it would be economic for those communities down to and including Aklavik.

Q So that the communities where it would be economically feasible to supply gas would be Inuvik, Norman Wells, Fort McPherson, Fort Simpson, Fort Good Hope and Aklavik.

A Yes, now there is in this report taking those same communities we have also calcultaed, if you used a common pricing, in other words you said that they were all part and parcel of the same system which often happens in distributing gas in areas and therefore you weight averaged all of this to come out with a similar cost to all of these communities, and I will locate the table later. I think it demostrates that on that basis it is certainly competitive in all these communities. --If that were the manner in which rates were constructed, it really means that, if you like, on that basis that Inuvik is subsidizing some other place, etc., but that on an overall basis, everybody would benefit.

Q Well, you say that those are rates at which the gas could be delivered to those communities without subsidy?

A Yes, and what I am saying is that then within the distribution system itself. Let's say that it were a governmental agency that decided -- or just a private distribution company that decided that it were going to serve gas in all these communities. It might arrive at and come to the conclusion that a common rate should be charged in all communities.

Q Oh, yes.

A That would mean that in every instance here it would be economic. There wouldn't be under that basis as much economic advantage by using gas in Inuvik as would otherwise be the case, but there would still be a decided economic advantage.

Q Well, every community -- well, you cannot -- you cannot deliver gas to any community south of Wrigley without subsidy, that is what this chart tells me.

A Yes, if we go to the next table on page 34, sir. This combined communities that we, combined in one lateral system called the Hay River -- Yellowknife/Hay River lateral system. --And of course this shows the economics at each of the communities there if the whole system were put into being and each community paid its share of the transmission charges on that lateral. That would indicate, for instance, that Hay River, if rates were calculated on that basis, just looking at that chart, it would probably be economic. However, the problem of that is that it is not economic on that chart, on that table in Yellowknife, Pine Point, Rae and Edzo and in other words it would not be competitive without the loads on that lateral of Yellowknife, Pine Point, Rae and Edzo the figures for Hay River and Fort Providence by themselves would be such that it would be uneconomic, and if you combined all of these then under one rate structure you would end up with a rate structure

which would mean it was non-competitive in those communities.

Q All right, there is one community missing from these tables, that is Tuktoyaktuk.

A Yes, that has been dealt with in here somewhere as well, sir, and it was demonstrated to be not economic.

Q Well, the people in Tuktoyaktuk who live right at the gas field will say "how come you can deliver gas more cheaply to Chicago and Toronto than you can to Tuktoyaktuk" and they will say, "It's our gas", putting that in a word not in any legal sense, and white and Native I think you will find will say that.

A Yes.

Q Are they too far from the -- why can't you? What is the difficulty there?

A Well, it is simply the distance away from our mainline facilities and the size of the load of the community, sir, as I recall. Now, there are situations --

MR. GENEST: The cost of the distribution system.. There are too few people to share the cost of one relatively inexpensive piece of pipe -- if you had a number of people --

THE COMMISSIONER: I think that Mr. Genest and you, Mr. HOrte, should mark the date at the community hearing at Tuktoyaktuk on your

calendars and I think both of you should come.

A Well, sir, I hope you understand we are not taking the position that gas should not be served to these communities. This study was a study to demonstrate what the economics on the normal basis of gas to various areas is calculated and so that one can see the magnitude of any subsidization, etc., and for the reasons that I stated this morning it is not a simple problem for many of the reasons that you just pointed out as well and the decision we think will have to be made by government and we will conform with that decision.

MR. GENEST: Sir, I think that while you are asking questions about table 32, the table on page 32, Table 4.1, there is an assumption that went by that this was a function of southerly distance, that it became less economic as one went south -- I don't know if that --

A Oh, no, it is strictly a function of the size of the load in the community and the distance that it is from the pipeline.

MR. GENEST: Size of load means number of customers and how much gas they are buying.

A Yes, sir.

THE COMMISSIONER: Yes, I understand that. I was trying to find a rough cutoff point, but I think we can --

A You might be interested

in looking at table 44, which is on page 37, sir.

This shows the cost of gas to Mackenzie Valley communities with overall system pricing and in that case if you go to the far column you can see that then in every -- the last three columns would demonstrate that in every case the gas would be competitive in those communities.

MR. GENEST: Is this report marked, sir? I don't think it has been filed.

THE COMMISSIONER: Yes, I think it should be marked as an exhibit and I think that, Mr. Scott, having regard to the hearings in Whitehorse, you might just -- and have the Inquiry staff make a note of table 4.3 on page 35 which relates to the cost of gas to communities on the Whitehorse lateral system, and the communities named there are Ross River, Whitehorse and Faro and mining developments. I don't know, I guess that means some mines. -- And we might arrange for that information to be sent over to Whitehorse so that they can injest it and make their views known when we go there in August. -- And I think that the three letters that Mr. Bell introduced should be marked as an exhibit Miss Hutchinson and mark the two attachments, A and B to the exhibit number.

(REPORT ENTITLED "IMPACT OF PROPOSED ARCTIC GAS PIPELINE ON ENERGY COSTS IN NORTHERN COMMUNITIES, SEPTEMBER 1974," MARKED AS EXHIBIT 131)

(LETTER FROM ACTING DIVISIONAL SUPERINTENDENT, N.W. LANDS AND FORST SERVICES, INUVIK, TO BAND COUNCIL DATED FORT GOOD HOPE, DATED MAY 12, 1975 MARKED AS EXHIBIT 132)

(LETTER FROM D.M. FOX, N.E.S., DATED APRIL 24, 1975, TO REGIONAL SUPERINTENDENT , N.W. LANDS AND FOREST SERVICES, FORT SMITH, MARKED AS EXHIBIT 132-A)

(APPLICATION FOR LAND USE PERMIT MARKED AS EHIBIT 132-B)

THE COMMISSIONER: And you might mark Mr. HOrte's statement about gas to northern communiites as well.

(STATEMENT OF MR. HORTE MARKED AS EXHIBIT 133)

MR. BELL: Well, sir, if we could just perhaps continue on this line for a brief period more, there are two applications for a right-of-way in the Mackenzie Valley, the other one is by Foothills which is represented here at these hearings and just so that we can deliniate the differences between the two of them. I do not know whether I am competent to introduce this as evidence or not, but I would like to refer to the map which is enclosed in the application to the Minister for a grant of interests in territorial lands by Foothills and they indicate on that map that they would be willing to supply gas on a subsidized basis, I think to all of the communities from the southern end of the Mackenzie system including Pine Point, Yellowknife, Rae, Hay River, Fort Providence, Fort Simpson, Wrigley, Fort Norman, Norman WEll, Fort Good Hope and Inuvik and the communities

in the Mackenzie Valley which are not covered on this map are Arctic Red, Fort McPherson, Aklavik and Tuktoyaktuk, and I am sure that Foothills has their reasons for not including them. I think that that represents the difference between the two applications, apart from the fact that Foothills appears to be willing to supply gas to these communities on a voluntary basis and the applicant wants to have government direction before doing so.

THE COMMISSIONER: Well, you support Foothills, do you?

MR. BELL: I support neither side, sir.

Well, I would like to put a hypothetical question to you, sir. Let's suppose for a moment that there were no people living in the Northwest Territories. I think there may be people in Canada who are under that impression. I take it that if that were the case Arctic Gas would still be able to go ahead, build and operate the pipeline on an economically viable basis?

A I would think so, yes.

Q You would be able to bring in the labour that you needed to construct it and the markets are there to absorb all the gas that is available?

A Yes.

Q So that the population of the Northwest Territories isn't needed for this

project either as a market for gas or a labour supply?

A I wouldn't agree with that at all. I would say this that you're -- you are posing a hypothetical question assuming that there is no people here. The fact is that there are people here which certainly I think is of great advantage to any pipeline system that will go through the area and an advantage to the people in that araa in that certainly from a straight fundamental point of operating the pipeline, the fact that there are people in an area, communities in an area where we would hope that we can obtain those people to operate facilities, do the necessary things on the pipeline, we think that this is a very decided advantage, not only to us but to them.

Q Well, don't you have to set up special training programs for northerners in order to permit them to work on the pipeline?

A Yes,

Q This costs you money, I assume?

A Yes.

We think it will pay off in ~~faith~~.

Q And I suppose if you had to supply gas to communities in the Northwest Territories, you'd have to put this into your administrative structure in order to look after that.

A Yes sir.

Q Would it be fair to say that the financing of the pipeline -- we've heard testimony that the construction schedule is closely tied to the ability of the applicant to finance the project -- would you say that the financing of the pipeline won't really be practical until all the necessary regulatory approvals have been received by the applicant?

A Yes.

Q And I take it this would include approvals that have been applied for before the National Energy Board, the Federal Power Commission and the Department of the Interior?

A Yes, the Department of Indian & Northern Affairs as well.

Q Right. Perhaps if you would, you could describe briefly the nature of the approvals applied for, before each of these authorities. Perhaps we could start with the National Energy Board.

MR. GENEST: Where is that going to get us?

THE COMMISSIONER: Why do we have to go into this? We know, don't we? What more

do we have to know about this, Mr. Bell?

MR. BELL: Well, sir, what I'm trying to get at is an estimate -- I would like to get the witness to estimate for us, if he would, the length of time he thinks it's going to take the applicant to get these approvals.

THE COMMISSIONER: Well, that's a different question, but I don't want to listen to a lecture, though I'm sure it would be a knowledgeable one, from Mr. Horte on the nature of these approvals. But certainly, subject to what counsel may say, the other question, how long will all of this take, I think you can ask that.

MR. GENEST: Well, sir, how would you like -- I don't think it would be of any use for Mr. Horte to estimate how long you're going to take.

MR. BELL: Well, I'm not asking how long the judge is going to take, Mr. Genest.

MR. GENEST: No --

MR. SCOTT: I'd be prepared to file Mr. Williston's canned evidence before the F.P.C. which deals with all those matters.

MR. GENEST: I don't know how Mr. Horte can informatively -- or how his evidence is going to be of any value without knowing how long the other bodies are going to take.

THE COMMISSIONER: Yes.

MR. GENEST: I just don't think it's helpful.

THE COMMISSIONER: Yes, you've got a good point. I guess I'm being buffeted a bit here.

MR. BELL: Well, I just thought --

THE COMMISSIONER: Maybe Mr. Horte can shed some light on how long this Inquiry is going to take.

(LAUGHTER)

A No, I'm afraid I can't, sir.

MR. BELL: O.K.

THE COMMISSIONER: It's taken two months and ten days so far, so we're moving along very nicely.

MR. BELL: Q Well, apart from the authorities that I've just mentioned, are there any other regulatory authorities to which it will be necessary to apply for permits to build a pipeline?

A Not to my knowledge.

Q If I were to suggest to you the Northwest Territories and Yukon Water Boards, would you be able to tell me if you will have to apply to them for permits?

A I can't. I don't know.

Q It's my understanding, sir, that Treaty negotiations are now in progress between Canada and the United States to provide for an agreement whereby each country will not interfere with pipelines traversing the other's territories or

tax the transit of the gas and oil in those pipelines. Is that your understanding as well?

A It's my understanding that there are discussions going on in that area, yes.

Q And presumably such a treaty, if it were consummated, would apply to the Mackenzie Valley Pipeline?

A Yes.

Q Can you tell me if it will be necessary to have such a treaty before the financing of the pipeline will be practical?

A I can't give you an assured answer in that regard, other than to say that such a treaty, we think, would be helpful in the financing of it.

Q Are you aware, sir, that the American constitutional system requires that all treaties to which the United States is a party be ratified by a vote of the Senate of United States?

A You know, I think that is correct but I'm certainly no authority in that area. Somebody else is better qualified than I am.

Q And the Senate of the United States may wish to hold hearings on this treaty before it votes on it, on whether or not to ratify it?

A I don't know that, sir.

Q So you couldn't tell me whether or not hearings would be held.

A No, I couldn't.

Q And how long they might take?

A No.

THE COMMISSIONER: Nobody can tell you that.

MR. BELL: Q I'd like to refer you to page 14 of your prepared testimony.

A Yes sir.

Q This is relating to socio-economic considerations that went into route selection.

A Yes.

Q And you state, "that the development of a pipeline in the Mackenzie Valley region is of substantially more consequence than a specific mile by mile routing of the pipeline." Do I understand from this, then, that it's your view that no matter where the exact location of the route, the socio-economic impact of the pipeline will be essentially the same?

A No, we think that the more major socio-economic consequences are associated with the -- let's put it this way, with the pipeline and the ensuing development that will take place as a result of that pipeline, we think that they are the major impact in this area.

Q And in the following sentence you briefly describe what you conceive to be the major impacts which are, "It makes possible the

associated hydrocarbon developments, construction and operating jobs, and the creation of a more stable economic base." Does that pretty well cover the field?

A Sorry, would you tell me where you're reading from?

Q Yes, it's the next sentence in that paragraph.

THE COMMISSIONER: Page 14.

MR. BELL: It's page 14, the paragraph that begins:

"The first point that should be made,"

and it's the second sentence in that paragraph. You say:

"The existence of the pipeline makes possible the --"

A Well, I think those are the positive aspects of the socio-economic consequences.

Q Right, and in your opinion these are real benefits that you feel able to predict at this time?

A Yes.

Q Could you explain just alittle bit what these associated hydrocarbon developments would be, and how they would be made possible by the pipeline?

A Well, I suppose if a pipeline was never built in this area that the drilling activity and the associated further development of future reserves, etc., would cease, there wouldn't

be much point in developing those resources if there were no place to market them. So that's fundamentally what is meant. If there is a means of transporting those products to market, then I think you're going to see a continuation of that development and the positive benefits that that brings to the area.

Q This would relate to both gas and oil?

A Pardon?

Q Both gas and oil, is that what you mean by "hydrocarbons"?

A Yes.

Q And then you say there would be benefits in the form of construction and operating jobs. I would like to refer to the table in the construction plan that Mr. Williams referred to the other day, at 13-A, tab No. 5, at page 24.

A Tab No. 4?

Q Yes, 5.

MR. GENEST: Tab 5, page 24?

MR. BELL: Page 24.

A Yes sir.

MR. GENEST: The table, Mr. Bell, was preceded by an exhibit, that showed the additional people required by the super structure supervising the ancillary people.

MR. BELL: The owner would have his own --

MR. GENEST: That's right.

MR. BELL: -- his own personnel on the construction project.

Q Well, taking that into consideration --

A You're pointing to the chart?

Q It's figure No. 1, I think, is what it's called, and it covers five summers and four winters. Starting off in the first summer with a very small number of people, you go to the first winter to somewhere between -- well, I guess 750 people in the first winter.

A Yes.

Q And in the following summer it increases again to about 2,000 people?

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A The following summer, yes.

Q And then it increases the following winter to between 6,500 and 7,000?

A Yes, this is for the total construction, not just construction in the north.

Q Right.

THE COMMISSIONER: And that first peak is the first winter of pipe-laying?

A That is correct.

MR. BELL: Then it drops somewhat for the following summer to a little bit less than 5,500.

A Yes.

Q And goes up again the following winter to 7,500.

A Yes sir.

Q And then it takes a considerable drop the following summer down to, it looks like about 1750, I suppose.

A Yes.

Q And then it goes back up the following winter to 5,000.

A Yes.

Q And finally it falls off for the construction period in the last summer to 1,500 or thereabouts.

A Yes sir.

Q Now that relates just

to the construction period.

A Yes.

Q And I take it that for the Northern Division, at any rate, during the operation period the number of people employed would be -- well, you'd start off at 130 in the first year approximately and then increase gradually over a period of five years up to 500?

A What part of the exhibit are you looking at, sir?

Q I'm afraid I don't have it handy right now.

A What are your numbers again, sir?

Q 130 in the first year, increasing to 208 in the fifth yaar, does that sound about right to you?

A Is this just in the north?

Q In the Northern Division, yes. I remember writing them down.

A 208 is the number I recall, yes.

MR. GENEST: It's at the end of the book, table 2.1.2-D.

A Yes sir, I have it now.

MR. BELL: Q Then you go on to say it will create a more stable economic base. I would like to know in comparison to what would it be more stable?

A More stable than it would otherwise be without this development.

Q So you're saying it would be more stable than the expected development that would take place under present conditions?

A Yes sir.

Q Projecting the present trends.

A Yes.

Q Are you saying that it would be more stable than the hunting, fishing, and trapping economy?

A That's our belief, sir.

Q Has the applicant compared the pipeline economy, if I can call it that, with any alternative development scheme for the north which would not be centred around or founded on a pipeline?

A Sorry, that would not be centred around what?

Q Or founded upon a pipeline.

A Well, I think what we've tried to do is assess the situation, and this will, I'm sure, be discussed at length in the Phase 4 of these proceedings. The situation with and without a pipeline, and on the basis of that our assessment of the impact in this area, which we think on balance, is a positive impact.

Q So you're telling me

then that you haven't compared it with other developments which might not be predictable, given present trends?

MR. GENEST:We're going to have experts give evidence on that in Phase 4. I think we have comparisons. Mr. Marshall tells me I'm not understanding Mr. Bell's question properly.

THE COMMISSIONER: Well, we're grateful to Mr. Marshall for that interjection.

MR. GENEST: You're asking if we've compared it with other developments that we don't know about, is that it?

MR. BELL: Well, other developments that are not included in present trends.

A My recollection, sir, and I may be wrong, is that we have tried to show the situation, a prediction of the situation without the pipeline, and a situation with the pipeline, to show what the impacts would be, under those two circumstances, comparing one with the other.

Q Well, I'd like to examine a little more closely the phrase,

"Stable economic base",

and find out what you mean by that. I take it you wouldn't say that the table that we just referred to, the employment table, which show the peaks and valleys of employment, is a stable economic situation.

A No, we're thinking of the ongoing longer term effects.

Q Would you say that the

long term is covered by the life of the pipeline?

A Yes.

Q Which is about 40 or 50 years.

A Could well be.

Q Well, it wouldn't be any longer than 50 years, though.

A If the reserve development continued, yes, it could be longer. I think the physical facility will be capable of pumping gas for a longer period of time than that. It's a question of how long there will be a commodity to push through that pipeline.

Q In your opinion, then, the long term relates to the foreseeable ability to pump gas:

A Certainly when you're equating it to this particular development, yes.

Q Which would be about, in terms of generations, about two.

A If you're using 40 or 50 years, yes.

Q I suppose you're aware that the Indian people in the Northwest Territories have lived here for hundreds, if not thousands of generations?

A Yes, I am, sir.

Q And they're likely to continue living here for many more generations to come.

A I would think so.

Q And their economy has been based for thousands of years on hunting and fishing.

A Yes.

Q Well, if we were to define "long term" as encompassing many generations, wouldn't you agree with me that this pipeline would constitute, not a contribution to a stable economy, but just the contrary?

A No, I can't agree with that.

THE COMMISSIONER: If you had, it might have shortened the Inquiry.

MR. BELL: I take it that you do concede that the pipeline will have some detrimental socio-economic effects?

A Yes.

Q I'd like to refer you again to page 14 of your written testimony, the same paragraph that we've been discussing, and the last sentence in that paragraph you say:

> "By the same token, many of the potentially detrimental effects come about because of the existence of the pipeline."

I'd like to know, sir, what is the significance of the word "potentially" in that sentence?

A Well, "potentially", referring to impacts that if not properly planned or

gone about in a proper manner, I think, would be very adverse. I think that great care has to be taken in this area, to minimize those impacts, the impacts during construction, etc.

Q So you're saying then that these detrimental effects are also real and predictable at this time.

A Well, I think that certainly they're real. I don't know that you can predict all of them. You certainly have to make a real honest attempt to do so, and do everything possible to minimize those impacts.

Q Now you refer in the same sentence to:

"Many of the potentially detrimental effects."

I take it then that you do concede that there are some detrimental effects which will be caused not by the mere existence of the pipeline but by its existence in a specific location.

A I'm thinking more, sir, not so much by the existence of the pipeline as the -- I think probably the greatest impacts and the greatest area of concern and where the area of greatest planning will have to take place during the construction activities themselves. I think they will be of much less significance from the standpoint of an operating pipeline than they will be from -- during the period of construction itself.

Q But you do concede, though, that there will be some detrimental effects related

to the pipeline in its precise location.

A I -- no, I wouldn't other than concede because of its location, if you associate that location with the construction activities. At least not of any great significance because, you know, once the pipeline is there, and it's buried under the ground and operating, you certainly, I don't think, will have the same impacts -- adverse impacts.

Q Yes, I think we're talking about the same thing. I think it's not really in dispute that the greatest impacts will come during the construction phase, and it is in that particular phase, given that qualification, that particular phase of construction, that detrimental impacts associated with the specific location of the pipeline are likely to occur.

A Yes.

Q But these are essentially secondary to the detrimental effects that will be generated by the existence of the pipeline in the region.

A Well, they certainly will not be -- you know, I think the longer term assessment of the socio-economic consequences are of greater significance.

Q But these long-term, I'm having a little difficulty with your answer. Are you saying these long-term effects would be generated during the construction period?

A No, I'm saying the

existence of the pipeline itself, its in-being and to take your example of it being 40 or 50 years, that's a much longer period than just a particular construction season, etc., and therefore it seems to me a great deal of significance must be --one must assess very carefully the significance of that longer term impact rather than the short term impact during construction. That doesn't mean you don't do everything possible in both areas to minimize all impacts. We think the long-term impacts are such that they're positive. I'm not saying there aren't some negative, but on balance it will have a positive socio-economic impact in the area.

Q I am still trying to find out what you mean when you say that the impact, the major impact will be related to the existence of the pipeline in the region as opposed to a specific mile by mile routing. I take it from that -- from your testimony that there will be some detrimental impacts as a result of the mile by mile routing during the construction phase.

A Yes, there certainly are potential impacts and notwithstanding everything possible being done to minimize these, I am sure there will be some negative impact.

Q But these negative impacts related to the specific location of the pipeline, the mile by mile routing are not significant in your opinion?

A That is correct.

Q Well, if I could refer you again to your written testimony, again on page 14, you say in the next paragraph:

> "Because of the above fact, engineering and environmental considerations were paramount in route selection, design and construction planning."

And I think you tried to explain that over the page on page 15, at least in part by saying that engineering and environmental considerations are quantifiable, but socio-economic considerations are not. That is the reason for putting socio-economic considerations in third place, as it were.

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A Well, they are much harder to quantify, yes.

Q And that is because they deal with human values and attitudes?

A Yes, sir.

Q WEll, I would like to suggest to you, sir, that there is an easy way of quantifying human values and attitudes. What you do is you go to the people who are going to be affected by your decision then you ask them if they subscribe to any given human value or they hold any given attitude. It is called a poll. I assume you are familiar with that device. That is how you make decisions in the management committee of Arctic Gas, isn't it? You take a poll.

A That certainly is one way of doing it and that is one input.

Q Well, didyou use any polls in coming to a decision on route selection?

A No, it was not done by a poll method.

Q Well, if I could move on down further on page 15, under the heading, "Communities", you said that in making your decisions on routing and facilities location near communities that you took socio-economic considerations into account, and as a result of that over on page 16 you say,"After considering the input of our socio-economic consultants we came to the conclusion that

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there was a judgmental trade off involved in location decisions related to communities." And in explaining that you go on to say, "On the one hand locating facilities and activities at a great distance from communities minimizes the chance of adverse disruption or impacts on those communities. On the other hand, the greater the distance the facilities and activities are from any given community, the lesser the chance for beneficial effects in the form of employment, infrastructure improvements, etc."

Now, I am just trying to understand this. It seems to me, sir, that what you are saying here is this, and correct me if I am wrong, that the farther you place the facilities from any community, the less adverse impact they will have, but by the same token, also the fewer benefits they will produce.

A Yes.

Q That is what you are saying.

And I suppose that by comparing and weighing the benefits and disadvantages we could arrive at some net benefit or net disadvantage?

A That is the judgment that has to be --

Q If we could agree on how to evaluate the advantages and disadvantages.

A that is the process that

one would have to go through, yes.

Q Now, is it a corollary to that proposition that the nearer the community you place the facilities, the greater the adverse impacts, but also the greater the benefits? Does that follow?

A Yes, generally.

Q So in that situation again if we compared the advantages and the disadvantages we could come up with some net benefit or some net disadvantage.

A That would be what one would try and weigh, yes, sir.

Q Well, then according to that particular proposition, the net benefit to a community remains the same no matter where the pipeline is put. So in socio-economic terms it doesn't matter where you locate the line in relation to a given community, the impact is always about the same.

A No, I don't follow that.

Q Well, you are saying that --

A Well, let's put it this way, if you located the pipeline a long distance away from the community, let's say you built the pipeline over on the eastern Arctic, if there were some economic way to do that I don't think it would have particular impact on a community,

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let's say, in Fort Norman, or very little, and so there would be no impact either positive or negative, so you really then don't have a -- under those circumstances -- you just say that the impact is -- that community is not affected. Now, as you get close to that community, that community is affected. Some of the impacts are positive, some of them are negative and now you have to use a balanced judgment.

Q So you are saying that it does not matter where you locate the line in relation to the community?

A Well, particularly having regard to the construction phase. -- And the operations to a lesser extent.

Q Well, I would like to know, where is the trade off involved here?

A That is a very difficult question to come down on, just where the trade off is. I think that in general terms that we have tried, as this statement indicates primarily because of the construction aspects to generally stay away from, a reasonable distance from communities. This hasn't been possible in all cases or at least is not in our plan on all cases. I am sure that we are going to hear more about the views of the communities, etc., in this regard, and that these are considerations that this commission of inquiry will be taking into account. Other regulatory bodies as well taking them into account to the extent that we have -- our judgment has

been superceded by judgments by others who have listened to all the evidence presented and if this requires modifications to what our plan is, why modifications to the extent they are possible will have to be made. All we can do is present before you what to us seems to be a reasonable plan.

Q Well, perhaps I could refer you to the next sentence in your written testimony which reads:

> "Having regard to these trade offs it was our judgment that we should locate facilities and construction activities at a reasonable distance from communities where practical."

So I take it here that the judgment that is being exercised in this process is the applicant's judgment.

A Yes, sir.

Q And any community affected is -- does not participate in this judgmental trade off?

A I -- I don't know if I can answer that question with a complete yes or a no. We did have people who visited communities, trying to get as much input as we could before we made these judgments. Whether the information we got really reflected in all cases the attitudes, etc., in those communities, I honestly don't know and certainly as indicated in this evidence, these

attitudes change from time to time which is very understandable because of -- obviously this is something new, it is difficult for those people to-- who have not been associated with this type of development to understand it. I think that you can get an attitude at a particular point in time that may be quite different at another point in time, so it's a very difficult area.

Q Yes. When we come to Phase 4 we'll all be interested to know more about how the communities have an input into this decision. Now you say that the route facilities were located at a reasonable distance from the community where practical. What do you mean "where practical"?

A Where it was -- there are many factors that had to be considered in the overall thing. These were the environmental concerns, the socio-economic concerns, the actual engineering design and the safety of the pipeline itself, all these factors had to be weighed and in some cases the weighing of all those factors indicated that it wasn't practical to locate it, it had to be located closer than in other situations.

Q And it's the applicant who decides what's practical and what isn't.

A Well, the applicant has decided what's been put forward in these hearings, in the final analysis that's what these hearings are all about; and the decision, whether our decisions right or wrong, are being tested, and I assume if they're wrong that we will be so directed.

Q Well, I take it then that these judgmental trade-offs that we're talking about could be overridden by a decision of the applicant that the location wasn't practical.

A It could be -- sorry?

Q The socio-economic considerations produced some judgmental trade-offs,

according to your testimony.

A Yes.

Q I'm saying that these decisions, these trade-offs, in the process that you're describing, could be over-ridden by the applicant if it decided that the location wasn't practical.

A Yes, but I would say this, that in the final analysis all of these decisions are being subjected to the process that we are going through. We put our best foot forward in trying to assess these things, as best we're capable of, and certainly many other parties, as you know, are involved in these hearings, and their judgments are going to be, or their input is going to be taken into account and judgments made by those in authority to make those judgments, and then we will have to abide by those judgments, and certainly we are perfectly willing to listen to all these factors. Maybe we haven't taken -- I'm sure we haven't taken them all into account. We're prepared to listen and to act on those, if in our opinion, alone, it would be wise to do so; but over and above that, even notwithstanding what we might do, there is a further authority that will make that decision which we will have to abide by.

Q Well, you're still open to be persuaded, then, that some trade-offs you made weren't correct or should be re-assessed.

A Yes sir, we certainly

don't have any qualms about our ability to assess everything. There are many factors involved and there will be a lot of inputs by many people, and I think it would be very foolish of us not to take into consideration all these opinions.

Q I'd just like to know what effect you will give to these opinions.

A Well, I can only tell you what I've told you. We are sincerely interested in hearing these opinions, and will try and adapt ourselves to these opinions wherever it's possible to adapt ourselves to it, and --

Q Provided that it's still practical.

A Provided it's still practical, yes,

Q You refer on page 6 of your testimony to an aspect of your management structure which involves committees to deal with specific aspects of the proposal.

A Yes sir.

Q These committees are technical, environmental, financial, legal, and public affairs. Can you tell me, sir, which of these committees has responsibility for supervising the socio-economic research and receiving your socio-economic input?

A Really none of those committees, sir. The socio-economic input has been something that has fundamentally been handled by

CAGSL staff and management; I think to some extent there has been an overlapping and some input into the sociological considerations by the Environmental Committee, because quite often the two areas overlap, or relate to one another.

Q But there's no committee?

A No specific committee with respect to socio-economic consideration.

Q Has the Legal Committee done any studies concerning the status of native claims in the Northwest Territories?

A I can't think of any done by that committee, sir.

MR. GENEST: Legal opinions and legal advice, sir, but that's surely in the area of privileged communications. We're going to hear from my friend's clients as to the nature; I think your rulings deal quite specifically with that.

THE COMMISSIONER: Mr. Bell, this might be a convenient time to pause. Before we adjourn for lunch, I want to make a statement about the way in which I suggest the participants ought to proceed with the development of terms and conditions that they want the Inquiry to recommend to the Minister and his colleagues at the end of the Inquiry.

We are now close to the end of Phase 1, and so I want to look ahead for a moment. You all know that my task under the order-in-council establishing the Inquiry is to report on the

socio-economic and environmental impact of the proposed gas pipeline and all of its ramifications. Then I must recommend appropriate terms and conditions that ought to be imposed on any right-of-way that might be granted. So when the four phases of the Inquiry have been completed, I will be asking counsel for all participants to make submissions. Their submissions will undoubtedly cover the whole question of the impact of the pipeline, and as Mr. Templeton said, that is in many respects essentially a matter of prediction.

Their submissions will also consist of a presentation of argument in support of specific terms and conditions they say ought to be imposed on any right-of-way that might be granted. So I suggest that all of the participants at the end of each phase should begin to prepare the list of terms and conditions that they intend to urge should be imposed, if any right-of-way is granted.

One of the terms and conditions for instance, that the native organizations have advised they will urge should be imposed relates to the settlement of native land claims. No doubt we will hear from the Northwest Territories Association of Municipalities' argument in support of terms and conditions relating to the delivery of gas to the communities. But in the course of each phase there has been a great deal -- there will be a great deal of evidence brought forward that will relate to many terms and conditions that the participants will want to bring before the Inquiry. So I suggest that

all of the participants at the end of each phase should begin to prepare the list of terms and conditions that they intend to urge should be imposed if any right-of-way is granted.

In due course I will want to hear what specific terms and conditions you all say ought to be imposed. And this is relevant in many ways to what Mr. Horte was saying this morning, because he said he anticipates the Inquiry will recommend certain conditions, the government will determine what terms and conditions ought to be imposed, and then Arctic Gas will have to decide if it can live with them; and at that stage it will have to decide whether it is going to proceed with this project.

Under the terms and conditions that are eventually imposed, now the terms and conditions that you -- and I'm speaking now to the participants -- that you urge should be presented in writing supported by written argument and with appropriate references to the evidence that you call in aid, that is with citations of the evidence given by witnesses in the transcript, and by citations to appropriate exhibit numbers.

I have already asked Commission counsel and the Inquiry staff, as well as the Inquiry Appraisal Team, to follow this procedure. The Inquiry Appraisal Team is the group under Dr. Fyle's direction that used to be known as the Assessment Group, and is now known as the Inquiry Appraisal Team.

That means that the terms

and conditions prepared by the Inquiry staff and the Inquiry Appraisal Team will be presented to this Inquiry by Commission counsel and when Commission counsel presents the terms and conditions on behalf of the Inquiry staff and the Inquiry Appraisal Team, and on his own behalf, he wants the Inquiry to recommend, you will all be in a position to adopt them, to challenge them, or ignore them.

I respectfully suggest to the participants that you should all follow that same procedure. It is, I think, the fairest way to proceed and the most useful to me. It may even lead to agreement on all sides on certain terms and conditions. I do not want you to over look the evidence given at the community hearings. It is every bit as vital as the evidence given at the formal hearings. I suggest, therefore, that at the end of each community hearing you should prepare in writing the terms and conditions that you believe ought to be applied as regards that particular community.

What I say here applies especially to the Native organizations , the Northwest Territories Association of Municipalities, and of course the Inquiry Staff. So that out of the Aklavik hearing I would expect that in due course I will receive from Mr. Bayly on behalf of the Inuit organizations, proposals relating to the terms and conditions that the Inuit organizations want imposed at Aklavik if a right-of -way is granted.

I would of course want from Mr. Bell the terms and conditions that the Brotherhood and the Metis Association would urge, so far as Aklavik is concerned. And I would want the same thing from the Northwest Territories Association of Municipalities after the Hay River hearing. And of course from the Indian Brotherhood and the Metis Association after the Hay River hearing.

I will of course at the end of all the evidence want to hear your submissions on what you conceive the impact of the pipeline and all of its' ramifications will be, because it is upon your assessment of the impact that the terms and conditions you want to impose will depend.

But I think that in the meantime that at the end of each phase you should prepare at least in draft, the terms and conditions you feel should be proposed in the light of the evidence given during that phase. I realize that as we go along from one phase to another, and from one community hearing to another, you may very well want to amplify or modify what you

have prepared. But I respectfully suggest that you should begin now. Maybe you have already begun. I leave it to Commission Counsel to discuss with counsel for the participants the question whether such proposals should be exchanged at the end of each phase, or at the end of each community hearing, or not until all of the evidence is in.

And I'm having this typed up and it will be available to all of you, and Miss Hutchinson will make sure that it's sent in the mail to Mr. Veale and Mr. Sigler, and Mr. Reesor. I don't want you to think Mr. Templeton, that I am not aware of the fact that the Environment Protection Board has prepared specific terms and conditions and actually put them in writing. And that is in a sense the-- what I want all of the participants to do, in the light of all of the evidence as we proceed.

And in that way, I think that you can take advantage of the division of the Inquiry into the four phases, and at the same time enable the Inquiry at the end of the day to take into account everything you rely upon from each phase.

So we will adjourn until two o'clock.

(PROCEEDINGS ADJOURNED UNTIL TWO O'CLOCK)

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. SCOTT: Mr. Commissioner, I undertook to my colleagues that I would clarify a matter that was referred to in your statement this morning. You referred to the Inquiry Appraisal Team and then I think paranthetically suggested that it had some connection with the Government Assessment Group. That connection is perhaps apparent but not real. The Government Assessment Group is dead, no longer exists. The team to which you refer are those persons who are on Commission counsel staff, some appointed by you, and some that our requests seconded from either industry or the Government of Canada, and I think what was intended, if I may respectfully say so, it was to refer to the Inquiry Appraisal Team as our staff advisors in this matter.

The second thing, I raised that because I know that the Government of Canada is -- or the department is rather sensitive about that matter.

The second thing is all counsel have begun to think about your comments about the way in which we can be of assistance to you in preparing recommendations to the Minister in view of the fact we ultimately have to make submissions to you on those matters, and with your permission I would like to list that as the first item on -- to be dealt with at a meeting of counsel which we anticipate holding in the week of June 2nd, either on Monday night or on Wednesday night of that week,

depending on whether the hockey season has finished by that time.

THE COMMISSIONER: It may have finished, but a new one may have begun. You'll have to watch for that.

VERNON L. HORTE, resumed:

CROSS-EXAMINATION BY MR. BELL (CONTINUED):

Q Can you tell me, sir, which members of the consortium have operations north of the 60th Parallel?

A The Imperial Oil Company, Gulf Canada, Shell Canada, Numac and Sunoco E. & P. who have just recently withdrawn, of course, also had operations in the north. That's all that comes to mind, sir. Possibly Canadian Superior, I am not sure of that.

Q Well, if I was to suggest to you that Canadian Superior and its parent, Superior Oil, operate albeit indirectly in the north through/their control over Giant Yellowknife Mines, would you be able to confirm that?

A I don't know that of my own knowledge.

Q Are you aware that the ownership of the land in Northwest Territories through which the pipeline route would pass is now the subject of litigation?

A I understand that to be so, yes.

MR. GENEST: Has a writ been

issued, Mr. Commissioner?

THE COMMISSIONER: Well, I don't know.

MR. GENEST: We better find out if Mr. Horte does know.

A I'm sorry?

THE COMMISSIONER: Well, it's a subject of claim --

MR. GENEST: Contentious, yes.

MR. COMMISSIONER: -- and do we have to go beyond that? Mr. Horte knows that.

A I know that it's a subject of claim. Whether it's a matter of litigation or not, I'll refer to my counsel.

MR. BELL: Q I believe you said yesterday that you have offers from various parties to subscribe to portions of the equity in the pipeline company. Can you tell me if these offers are conditioned on the resolution of any litigation in respect of ownership of the land?

A Well, to the extent that that has an impact or an effect upon the pipeline, why certainly it would be covered by their conditions. I don't recall, I don't believe that the actual conditions themselves specify that as being a condition, but they are very general.

Q Would they be conditioned on the applicants' securing the easement and the fee simple title that we were talking about this morning?

A I'm sure they will be

conditions on that; I don't believe we could ever finance the project without that.

Q So in addition, the debt financing is likely to be conditioned on the same, on these conditions?

A Yes. You'll have to know that you have in fact the right to construct a pipeline across those lands.

Q If I could just turn for a moment to the question of routing, on the east as opposed to the west side of the Mackenzie.

MR. GENEST: Sorry, Mr. Bell, I didn't get that.

MR. BELL: The question of routings.

A Yes.

MR. GENEST: On the west --

MR. BELL: On the east as opposed to the west side of the Mackenzie River.

Q This subject is covered on page 13 and follows your written testimony, and you state on page 13 that the east side of the Mackenzie was chosen as the best route in spite of the fact that the west side route was more direct, and you give three reasons for choosing the eastside over the west side.

A Yes.

Q The first one is that gas discoveries in the Mackenzie Delta accelerated and discoveries south and west of the delta were

disappointing.

A Yes.

Q You say that the location of the Mackenzie Highway on the east side of the river had some influence on this decision.

A Yes.

Q And that third, the fact that there are difficult river crossings on the west side was also a factor in this decision.

A Yes.

Q Are these listed in any order of importance or weight?

A No, I think it was a combination of these factors.

Q Would it be possible for you to give us what weight -- what their proportional weight would be in this decision?

A Not really, and I don't know what purpose it would serve. I think, you know, it was a combination of all these factors that led us to conclude that the better location was on the east side of the Mackenzie.

Q Did the potential for gas discoveries in the Mackenzie Basin on the east side of the river have any bearing in this decision?

A The potential --

Q For gas discoveries in the Mackenzie Basin on the east side of the river.

A Not really, because the potential, although it's been very disappointing, I

think, is nevertheless still better on the west side of the river where the sediments are of greater thickness. As you go east you run into thinner sediments and ultimately into the shield itself.

Q Could you tell me why acceleration --

A Except at the north end up near the delta area.

Q Yes, I would like to know why accelerated discoveries in the Mackenzie Delta would be a positive indicator for an east side route?

A Well, certainly it indicated that there had to be a line built if those discoveries matured and it looked like the -- as the potential of that area was indicated to be large, that there would be a line that would come out of there which would have to connect with any line coming out of the Prudhoe Bay area and when that was combined with the other factors it was a question of bringing one line across or the other line across and that was one of the factors as mentioned that had -- was taken into account in that judgment.

Q Even if -- well, no matter which side of the Mackenzie you chose you would have to have a Mackenzie River crossing below the delta --- above the delta?

A Yes.

Q Do you know -- can you tell us now how much of the Mackenzie Highway has been constructed on the east side of the river?

A No, I can't precisely. I know that it has not progressed too far northward.

Q I take it though that the applicant assumes it will be completed to Fort Good Hope by the time of construction of the pipeline?

A I don't know that to be a fact, that it will be. I just don't know.

Q It is an assumption upon which the applicant operates, though, isn't it? I think that we have had evidence to that effect.

A I can't be sure of that , sir, I'd have to check that.

Q Well, I take it that the routing of the highway in any case is not crucial to the east side route?

A No, our plan with respect to the project is such that we believe it can proceed and be constructed, in fact our cost estimates contemplate no highway.

Q So the highway is sort of a bonus if it is there?

A It is helpful, very helpful, yes, if it is there.

Q Would the applicant if required by the appropriate authorities, be willing to construct a pipeline on the west side of the Mackenzie?

A On the west side?

Q Yes, sir.

A I can't answer that question just off the top of my head. We would have to look at it, evaluate it and see whether it was a sound project to proceed with.

Q Well, would you -- would the applicant be willing to build the pipeline along

any other route if for some reason the Mackenzie Valley was not available as a route?

A I can't really answer that question without somebody suggesting a route and evaluating it to see what impacts it would have on the feasibility of the total project.

Q You are still willing to consider other routes though?

A I think that we always have to keep our minds open to that, yes, sir.

MR. BELL: Well, I think that concludes my cross-examination, sir.

THE COMMISSIONER: Before Mr. Bayly starts, Mr. Horte, in your prepared evidence you dealt with the composition of the old Northwest Project Study Group and you told us that it joined forces with Gas Arctic Systems in 1972 to establish the Gas Arctic Northwest Project Study Group. I don't think you told us the names of the companies that were in the Gas Arctic Systems Group.

A Yes, I did. I told you the names of those in the Gas Arctic Systems Group, I believe. I don't think I did tell you the names of those in the Northwest Project Study Group.

Q Well --

A I can do them both.

Q I think on page two, the Northwest Project Study Group consisted of TransCanada, the two consumer -- the two gas companies

in the midwest and the three producers in Prudhoe Bay.

A That is correct, yes.

Q That is the Northwest.

A That is the Northwest.

Q Now, the Gas Arctic Systems Group --

A The Gas Arctic Systems Group consisted of Alberta Gas Trunk Line Company, Pacific Lighting -- I can get their full names here for you -- the Alberta Gas Trunk Line Company, Pacific Lighting Gas Development Company, Columbia Gas Transmission Corporation, Northern Natural Gas Pipeline Company, Texas Eastern Transmission Corporation, the Canadian National Railway or REalty Company that was their subsidiary that was involved, and I think that consists of the six companies.

Q And the Canadian ARctic Gas Study Limited was set up under the auspices of the amalgamated group?

A Yes, sir. -- On or about that same time an additional four companies joined the group. To the best of my recollection those were Imperial Oil, Gulf Oil, Shell and Canadian Pacific Railway.

Q And the consortium has an agreement that you described to us relating to the management of Canadian Arctic Gas Study Limited. What about the management of Alaskan Gas Arctic -- is it set up in the same way?

A Yes,it really comes under this overall umbrella, if you like.

THE COMMISSIONER: So it is the same three groups?

A It's the same, all the subjects in connection with the Alaskan Arctic Gas Study Group are discussed at the same Management Committee meetings, the same other committees meet with respect to matters dealing with the Alaska portion, etc., as they do on the Canadian portion.

Q So the membership of the Management Committee would be exactly the same?

A Yes sir.

Q And the pipeline company, Canadian Arctic Gas Pipeline Limited in whose name the right-of-way is sought, what is its structure now? Does it function at all except as a corporation established for purposes of making the application and the filings?

A That's all, sir.

Q Well, the consortium controls the pipeline company at this stage in exactly the same way as it controls Canadian Arctic Gas Study Group.

A Really, yes.

THE COMMISSIONER: Right. Well, carry on, Mr. Bayly.

CROSS-EXAMINATION BY MR. BAYLY:

Q Mr. Horte, the first

area that I'd like to have some comments from you on, is the question of route selection.

A Yes sir.

Q Perhaps your counsel could equip you with Exhibit 54, which is Section 8 of the application. I don't know if you have that, sir.

A I'll get it, sir. Yes, I have it.

Q Now the portion that I will be referring to, to begin with, is found at 8-A-1, page 4.

A Yes sir.

Q And there is a Section 3, which deals on that page with technological pipeline route factors.

A Yes.

Q Now, before going into that section, could you tell us sir, whether when the route had to be determined to take Prudhoe Bay gas into the south, whether Arctic Gas or others were certain that they would be able to find some gas that could be commercially marketed in the Mackenzie Delta area.

A At the time that the route for the Prudhoe Bay gas --?

Q I'm not saying it was selected, but at the time when it had to be considered, were the exploring companies fairly certain that some commercially producable gas would come out of the Mackenzie Delta as well?

A Yes.

Q And so when we look at the first paragraph in Section 3 on that page -- and I'll read the sentence of that paragraph:

"After determination of the areas of gas supply and the basic areas of market need, the first problem in deciding upon the general routing of the pipeline lies in determining whether it is feasible to build and maintain a pipeline in the area considered along a relatively direct route."

A Yes.

Q Now, I take it that that's the first consideration, you take the areas of source and you try and find a direct route, or as direct route as possible, to the area of market. Is that correct?

A That is correct.

Q And in this case you are looking for a route from the area of source in two areas to markets in Southern North America?

A That is correct.

Q And so your first consideration was to find a route that would link these two together, would that be fair to say?

A Yes.

Q The other alternative, I assume, would be to build separate facilities for the two sources?

A That is another alternative.

Q And so any relatively direct route that you found to bring both sources to market together would have to be a direct one from both sources.

A Yes.

Q In other words, if I might suggest that you had to -- or perhaps had to go through some compromise decisions because you weren't dealing with a single source, you had to find a route that would accommodate both of these.

A Well, what we're attempting to do looking at the two sources was to come up with a plan and a design which, because of the advantage of having two sources, could most economically get both those sources to market.

Q All right now --

A And I did give an explanation, I believe, yesterday with respect to the advantages we saw of moving large volumes of gas. It is a great distance and one has to have an efficient system, and we saw in the combination of those two sources the possibility of a most efficient system, which is what we've been developing as we've gone along.

Q And in terms of efficiency, direct routes are important and they are the thing that, according to your application, you consider first.

A Well, direct route having regard to the physical characteristics, you know, a direct route over a 10,000-foot mountain might not

be nearly as economical as one that goes around the mountain.

Q All right, I can understand that, but now after having picked a route which you think is direct in terms of having as few miles as possible in as amicable a terrain physically speaking as you can find --

A Yes.

Q -- I assume you look along that route as well for possible other gas sources that might be picked up along the way; would that be fair to say?

A Yes sir.

Q And so if a decision had to be made as to whether you would go along a route that had other possible gas sources, and one that did not, there might be very good economic reasons for opting for the route where you might find more gas.

A Yes, it's a matter of judgment. The magnitude or the likelihood; you know, how heavily you weigh those things.

Q And am I correct in assuming that the route that you have chosen as the prime route is one that goes through various areas that may in the future produce other bases for gas wells and sources of gas?

A Yes, however I would think that, you know, the predominant factors are the geological situation in and around the delta, the

Beaufort Sea area, and the North Slope. The results basically south of that area have been rather disappointing. The sediments are thinner, and the results have been poor. So those were the prime considerations.

Q All right, so in the area of the North Slope, that is Prudhoe Bay across to the delta, part of the Beaufort Sea and in the Mackenzie delta, you find encouraging looking sediments and some actual gas finds that have already been made.

A Yes sir.

Q And the sedimentary basin that is referred to as -- if I may use the term -- petering out towards the upstream end of the delta is not only in the delta, but am I correct in saying that it goes across to the Anderson River Basin as well?

A Yes.

Q And this would be perhaps an incentive for Arctic Gas to want to locate a facility on the east rather than the west side of the Mackenzie, since the Anderson is on the east rather than the west side of the Mackenzie.

A Well, except that the sediments basically, there are more sediments along the west side than along the east. You start to run out of sediments as you move east.

Q So you're saying that it would in terms of -- if that were the only consideration, that is that the sediment for producing gas looked better on one side of the river than the other, that

would be an incentive to put your pipeline on the west side?

A Yes, it would.

Q So what draws it over to the east side are a number of other things, one of them being major river crossing difficulties?

A Yes, the banks on the rivers on the west side emptying into the Mackenzie are much more difficult, as I understand it, than those on the east side.

Q All right now, when you say "as you understand it", I wonder if you would be able to give the Commission rivers that Arctic Gas really felt they didn't want to cross on the west side, which gave them part of the incentive to decide to apply for a facility location on the east side.

A I couldn't give you those rivers. Our technical witnesses that were involved in that, I'm sure, could.

Q All right, and we have had evidence from them about certain rivers. You yourself don't have that knowledge. You relied on people like the geotechnical panel --

A Yes, I have been involved at various times and periodically in those major decisions, obviously, but it's impossible for me to recall specific rivers and particular situations. They are much more able to do that than I am.

Q Now, another of the considerations, as I understand , that goes into this

or went into this decision, was not only that the rivers might be more difficult to cross on the west side, but also that there was a good possibility that there would be a highway to support the construction by the time the project got under way.

A That was certainly a factor and one of those mentioned, yes.

Q Now, in your making this decision, were you offered any advice, or were you asked if you would locate the facility near the highway by any level of the Canadian Government?

A I honestly cannot answer that question. I don't know personally.

Q Now, when you say thatyou don't know personally, should we look to somebody else in Arctic Gas who does?

A Well, I was not involved in any of the discussions --

MR. GENEST: Excuse me Mr. Horte. Mr. Bayly, I thought we had filed some minutes of a meeting between some ARctic Gas representatives when the counsel for CARC were cross-examining the first panel --

MR. BAYLY: I realize, Mr. Commissioner ---

MR. GENEST: -- when that subject was gone into.

MR. BAYLY: Mr. Commissioner, I realize those minutes have been filed. We have here a representative of Arctic Gas who may have been able to expand on that one meeting that we have minutes on. If he can't,that is fine. If he knows --

MR. GENEST: Mr. Williams was there and he has been on the stand practically constantly since the 3rd of March.

MR. BAYLY: One of our difficulties , Mr. Commissioner, has been that Mr. Williams does not speak for Arctic Gas as I have been told several times by Mr. Genest. I have now somebody who does and I was asking him a question

which I think he is qualified to answer, if not able to.

MR. SCOTT: Once more, Mr. Chairman, as I understand it, this is a question that was deferred to Mr. Horte at the time it was raised by Mr. Anthony. I don't have the volume in front of me, but I think it is volume number 17 of March the 13th at page 2004 and 2005, when it was understood that a policy witness would be made available to discuss or to deal with consultations with the Federal Government as to when they occurred, what they were and so forth.

MR. GENEST: Well, let me get out that volume because --

MR. SCOTT: I don't have the volume, I simply have a note of it -- Yes, this will be the first test of the much vaunted index which is available at a price to any of the other participants who are interested in buying it. So, don't let me down, Mr. Genest.

MR. GENEST: What was the page again, 2005?

MR. SCOTT: 2004 and 2005.

MR. GENEST: Well, at 2004, Mr. Anthony makes a request that these minutes be produced that Mr. Williams has referred to.

MR. SCOTT: Well, then 2009 or 2010.

MR. GENEST: I wonder if we should take up the time of the Inquiry. Mr. Horte

obviously from his answers doesn't have personal knowledge. Why don't we, Mr. Scott and I, get together, read the transcript and then we can probably solve this problem overnight.

THE COMMISSIONER: Correct the index.

MR. GENEST: Correct the index.

MR. SCOTT: The index has not been proved incorrect. I don't think, Mr. Commissioner, that anybody necessarily requires Mr. Horte's personal knowledge. It is obvious from the minutes that he wasn't at the meeting. But I think what is required is some -- I shouldn't tread on Mr. Bayly's territory, except that I would be raising the same matter, some account of what occurred and how it occurred.

MR. BAYLY: Mr. Commissioner, having been assured that Mr. Scott is going to go into this particular matter, I would be content that we work it out overnight and I will either continue that line of questioning tomorrow or Mr. Scott will.

THE COMMISSIONER: Well work it out overnight after you have all placed your orders for the index.

MR. BAYLY: I don't know if we want one.

MR. MARSHALL: I wonder, Mr. Scott, if we could negotiate a price.

MR. GENEST: I never undertook to do anything.

THE COMMISSIONER: Well, carry on, Mr. Bayly.

MR. BAYLY:

Q I take it, Mr. Horte, just to round some of this out that you were aware of that meeting of which we were all given minutes?

A I was aware that a meeting took place, yes.

Q And apart from that we won't go into it any farther at this point, but just as far as that meeting, there was some government involvement in the suggestions that led to the decision --

MR. GENEST: Two meetings --

MR. BAYLY: Two meetings in the suggestions that led in the decision to locate on the east side of the river?

A Well, I think the , you know, the obvious one that comes to mind from my own standpoint is that with the Government deciding to locate the highway on the east side, yes that had a bearing on the decision, because a highway located on the east side, if constructed, would be of assistance in the construction of the pipeline itself. It -- the Government had also indicated corridor guidelines, etc., and it seemed to be in keeping with that as well. Now, really beyond that I cannot be too helpful to you.

Q All right, now let me give you a hypothetical -- and just base your answer on your experience, which I understand is really quite extensive as a person who has been involved in the pipeline industry -- and this is a hypothetical -- had the Government decided to locate the highway on the west side, can you give an opinion as to whether Arctic Gas would have done its very best to overcome the difficulties involved in west side construction and located the facility there or attempted to do so?

A I just can't give you an opinion other than to say that it would have been a factor that we would have to look at very carefully.

Q All right, well, let me put the question in this way; is the highway a very important contributor to the ease of -- to easing the logistics involved in building a facility in this kind of area in the dimensions that you are anticipating?

A I suppose that in terms of the original construction it remains to be seen, you know, whether in fact the highway is there at the time of the construction of the pipeline, but assuming that in any event the highway would be completed, it is bound to be beneficial in the longer term with regard to operations, maintenance, etc.

Q Now, I am assuming as well, and as speaking to a person who has worked with TransCanada Pipelines that it was no accident, for example, that

the TransCanada Pipeline and the TransCanada Highway are located fairly close to each other in a lot of areas.

A Oh, I think that any time that you are in a remote area and have access to a highway, a railroad, or something of that nature, it is a great advantage to any operation.

Q All right, now, having said that this was a direct route with a large number of advantages which range from source of supply to easier river crossings to the possibility of a highway, I am assuming and perhaps you can correct me if I am wrong, that it is not the only direct route to bring gas out from both the Prudhoe Bay area and the Mackenzie Delta?

A No, I am sure that it isn't the only route.

Q And as a matter of fact it is not the only route in which highway could play an important part in the facilities location?

A Yes, I would agree with that.

Q However, you have given various reasons why you wanted to consider this route maybe in the guidelines and the other reasons we went into as your prime route selection. Now, was this selection process tentatively done, that is to run the facility along the North Slope of the Yukon and the State of Alaska, and then down the west side of the delta and then down the east side of the Mackenzie River, prior to the hiring of consultants like Northern Engineering Services and Gemini North and the various other consultants that Arctic Gas hired?

A I'm just trying to recall in terms of timing. I'm trying to recall the timing of the actual -- when the Northwest Project Study Group, during that period, before the two groups get together in what is now the Canadian Arctic Gas Study or Northwest Project Gas Arctic Study Group. The Northwest Project Study Group had been primarily looking at a route down the west side of the river and it was -- I don't know whether it was -- I'm trying to recall whether it was prior to the two groups joining, I think it was prior to the two groups joining together, in fact, that a decision was made that it appeared more logical for all the reasons given to come down the east side. I may be in error on that; I can't place the exact timing.

Q And was that decision one that was made prior to Arctic Gas hiring consultants

like Northern Engineering Services?

A Well, many of the -- for instance, Northern Engineering Services was a new group formed at the time of the merger. Many of the participants who are consultants to the Gas Arctic Systems Group and the Northwest Project Study Group really formed Northern Engineering Services, so we did have both groups, the advice of consultants who are now part of Northern Engineering Services.

Q So the basic group remained, if not the same, at least had a lot of the same inputs?

A The same inputs, yes sir.

Q So that any decision made might have been made with say Northern Engineering personnel, even though that group had not been set up at that time?

A Yes.

Q Now, still on the question of routing, I'd like to refer you, if I might, to Volume 17 of the transcript, and perhaps your counsel could get you that.

A Yes.

MR. GENEST: What volume?

MR. BELL: 17. Oh, starting at page 1947.

A Yes, I have that page, sir.

Q Now, what I'm referring to in this, Mr. Commissioner, is my cross-examination

of Mr. Dau in the panel that consisted of Messrs. Dau, Williams, Mollard and Watson, on the subject of route selection; I'd like to start on page 1947 at line 23 --

A Yes.

Q -- and I'll read that question and answer down to the next page at line 5.

"Q All right, could you describe your general knowledge of the social and economic condition of your prime route choice at the time that it was made?

A In the early stage of selecting a route?

Q Yes.

A It would be very minimal."

Turning over the page:

"Q All right, and did you seek outside counselling to increase this knowledge, or was the decision made without that kind of counselling?

A At that stage, without outside knowledge."

Now, Mr. Horte, this was Mr. Dau answering to the best of his ability for Northern Engineering Services, and the blank is whether Arctic Gas at that time had any socio-economic, if you will, information that helped them to make that initial decision to want to locate the facility on the east side.

A No, I think our position was similar to that outlined by Mr. Dau.

Q Then if we could go on that same page, 1948, to line 10:

"Q All right, at what stage did that knowledge come in and who did it come in from?

A It was, I think, mentioned previously, Northern Engineering did not retain consultants in that area, they were retained by Canadian Arctic Gas, who through courses of normal day to day business and meetings and so on they would have our information as we developed it."

Do you recall, Mr. Horte, at what stage you brought in these people Mr. Dau appears to have referred to, to get that kind of input?

A I am bad at recalling dates, but the input in that area, I think, would have really -- outside of the normal input that I think any engineer or anyone else looking at a route just naturally has, in looking at the route of a pipeline; you are aware of where communities are, you are aware of all these facts. You know, you don't have to be a sociologist to really take into account some of these considerations. The more expert advice that we were seeking really came about at the time that we in the northern area retained the services of Gemini North to look at various aspects of it from that standpoint. I just can't recall the specific timing of that.

Q That, I take it, sir, would be prior to the April 1973 meeting of which we have the benefit of the transcript?

A Yes.

Q In summary.

A Very definitely.

Q And so when Mr. Dau refers to the day to day business, that I assume took place prior to that meeting as well that you were in consultation with Gemini North and others perhaps on this subject.

A Well, they were doing very broad studies for us and certainly there were a lot of discussions that took place, and from discussions like that one gets input, and as we went further down the line why we had more and more input in this area. It was a gradual process building up to more and more input.

Q Could we then --

A From many sources.

Q All right, could we on the same subject then go to that transcript at page 1951 --

A Yes sir.

Q -- and the questions that I addressed to Mr. Dau in this area refer to facilities location at page 5 of Exhibit 54, and if I can read the paragraph at the top of page 5 to let you know what I was asking him questions about. This paragraph reads:

> "The east side of the Mackenzie River was ultimately selected as the prime route, in light of the fact that the government had selected that side for its highway, and in the knowledge that it would simplify the process

of making natural gas available for the communities along the river. On the other hand, the specific routing was arranged to avoid interference with present or future facilities of cities and villages by keeping an appropriate distance away from the settlements."

And you will recall this morning that Mr. Bell was examining you on the same point.

A Yes.

Q Now, at page 1951, starting at line 16 with a question:

"So an appropriate -- you got no direction then on what an appropriate distance was when you and Arctic Gas selected the prime route?

A It was developed in consultation and directions with the staff, the technical staff at Canadian Arctic Gas.

Q All right, did you do it on a settlement by settlement basis?

A I suspect not, sir. I cannot recall doing it that way."

Now, again Mr. Horte, we appear to have had Mr. Dau outside an area in which he was involved, but he does make reference to discussions with the technical staff at Arctic Gas. Now do you recall discussions as a member of the staff of Arctic Gas, that developed some kind of a judgment, if we can call it that, because you couldn't reduce it to a formula this morning, as to what an appropriate distance is from communities, and if it varies from

community to community?

A Well, I think an appropriate distance from the standpoint of the pipeline itself, once constructed, I think what most people had in mind was that it was a safe distance from the community; fundamentally a safety factor, etc., in that basically it did not seem that the facility itself created a socio-economic impact in the community. It was more this longer term effect that I mentioned earlier this morning, and the particular aspects dealing with construction itself.

Q Could you tell me, Mr. Horte, going to another pipeline by way of analogy, how far does the Trans-Canada Pipeline stay away from communities?

A Well, there are various codes, as you know, with respect to the distance or depending on the distance, what form of facility one has to build; but generally I think what you attempt to do as best you can plan it, is to stay well outside of that community, or what you see as maybe potential expansion of that community because if a community expands near a facility, it quite often becomes necessary to change that facility to re-locate it, if you like, or else if you leave it where it is, is to put in a different quality of pipe to increase the safety aspect of the pipeline.

Q Now, I assume then that in order to do that you must do studies of the various communities and the amount that they are likely to grow,

is that correct?

A I don't think any great in-depth studies, no sir, looking at the location of the community and staying a reasonable distance. Certainly when you're dealing with small communities, that historically haven't grown a great deal for, you know, a long period of time, then it's a pretty easy judgment to make. When you get near larger communities, growing areas, cities, etc., it's -- you do need additional advice, you use the planning advice that is available in that area.

Q Would it be fair to say that you could then, using that reasoning, go closer to Wrigley than you could to Fort Simpson?

A I don't know when you pin it down to communities of that size, I'm just not aware enough of those particulars. I'm certain that there are others that are, and can testify to that.

Q So then if any discussions and determinations were made by Arctic Gas about what was appropriate, an appropriate distance from communities, that was done without your being involved in it.

A Yes, in terms of specifics. Certainly it was a consideration in locating the pipeline. I think that the -- whether it has been -- whether there may be different views with respect to this, it was the view of our people involved that we were at a reasonable and safe distance from those communities.

Q And according to your application the sentence that I read from Volume VIII there appears at the time of its writing to have been an intention to locate at least close enough to be able to supply gas to these communities at some point.

A Well, yes, that is the other aspect that is a consideration, is the closer you are, obviously, to the community, the better the economics are for gas service to that community, particularly when you are talking about small communities like these.

Q Now, if -- when you were discussing this just about two questions ago, you referred to the safety factor. Now, is that safety to the pipe, or is that safety to the people?

A Safety to the people.

Q So when you say you would have to build perhaps a different kind of pipe into your system if you went very close to a community that would be to increase the safety factor so that if there were any kind of a failure,

that it would be less likely to cause some sort of danger to life and limb?

A That is correct.

Q I take it though that sometimes pipeline facilities do actually go through communities and I am assuming that this must be built in when that happens?

A That is built into the design then, sir.

Q All right.

Now, could I refer you to that same volume of the transcript, please at page 1954.

A Yes, sir.

Q At line 27.

A Yes.

Q Starting with the question: "Is it a policy...", and this is again, sorry, a question to Mr. Williams, rather than to MR. Dau, but the same panel.

"Is it a policy of trunk services like pipelines not generally to go through small communities in Canada, but to go outside them?"

Answer:

"I am sure that there are exceptions, but I would say yes. That would be the general rule of a locator unless he had a specific reason to take a line to a community for distribution

for distribution of gas or so forth."
Now, Mr. Williams has suggested to me in that answer that if you really want to put gas service into a community that you put the pipeline through it. Can you have any comment on that?

A I didn't read what he said there to mean that, if he did I would disagree with him.

Q All right, what did you read it to mean?

A Well, that you would located it closer to that community so that a connection from the mainline to the community would be more logical, more economical for service of gas to that community.

Q Can you give us some idea of what an economical distance is, because I think that you are a person who has been involved in this kind of thing and might be able to give us as good an answer as we have been able to get.

A Well, an economical distance is all a function of the amount of gas that would be consumed in the community related to its distance from the pipeline or the cost of facilities to get there. For instance, to give you, let's say an extreme example. If you were to serve one house with gas service and it were located five miles away from a main transmission line, this certainly wouldn't be an economic service. On the other hand, if five miles away, there

were a significantly large community, that the cost of building a larger facility to that community was supported by the price at which he could sell the commodity in that community and recover those costs, then it would be an economic service.

Q So would it be fair to say, if we employed that formula exclusively and this isn't a real life situation, I realize, because you have told us the other factors involved, you would want to locate the facility closer to WRigley than you would to Fort Simpson?

A Yes.

Q If you were going to supply gas to both of them?

A Yes, sir. If that were the only factor. There are other factors. You really in terms of economics can't just -- you know, wiggle a pipeline all over the country to run it close to communities because those costs become very excessive as well.

Q I realize, although some of your consultants have suggested that bending it to go around things is a lot easier than you have, but it is, I realize an expensive thing because you have to reroute and use machinery to change the direction of the pipe.

A Well, it adds to the total cost, obviously, the longer the distance.

Q All right. Now, going on to the point that Mr. Bell had raised

earlier, I realize that the basic economics that you have suggested make it expensive to run a spur line to a small community because you have very few consumers.

A Yes.

Q But is it fair to say that unless you apply the formula that you and Mr. Gibbs were discussing the other day, there is an important factor that to supply gas to Fort Simpson, should in terms of the amount of energy it takes and the length of pipe involved, be cheaper than to supply gas to Chicago. Now, that takes out the factor of how many consumers you have in Chicago, but putting that aside there is, -- there should be some compensation for the shorter distance in the pipe, is that correct?

A Yes, but that is a total part of the economics. For example, I think it is clear that if you move gas through a 48" diameter pipeline as proposed by this project to the large markets that are located at the end of it, that you can land gas there at a competitive price. That does not mean. --it's just simply a matter of distance and volume that can be used. That doesn't mean that a small load located almost adjacent to the line, if you look at just the straight economics, would receive gas at as low a price.

Q All right, and that --

A It is just a function of the costs associated with the respective services.

Q And that is also then a function of the theory that every consumer should help pay for the whole thing? If I can put that in that simplistic form.

A Sorry, would you repeat that question, please?

Q I am suggesting that the reasoning that goes behind those economics is based on the theory that all the consumers should help pay for the whole facility.

A All the consumers that take gas from that in one way or another help pay for the whole facility, yes.

Q Yes, so that the people of Tuktoyaktuk, if they were to take gas, would according to that economic theory, be required to help pay for the pipe that goes down to Mouncie?

A Well, when you go off a main gas transmission line, the historical basis upon which rates have been set, that at each point of take off, over the gasses sold from the main transmission line, the theory is that each customer along that line pays his proportionate share of the costs for moving the gas volumes that he consumes through that line. He benefits from the fact that many other customers may be located along that line and it is a combination of those combined volumes that make it economic for all to receive gas -- each paying his proportionate share

of that main transmission cost, but now you are at the main gas transmission line and you then have to, and the normal practice is, that the distribution company acquires gas at that point. Now, his costs continue on from that point until he gets the gas to the ultimate burner tip. So he has to add to the cost that he pays, his proportionate cost on the main transmission line, he has to add to that the costs of moving gas from that point into the community or city or whatever it may be, plus the costs of distributing it throughout that city, etc., and all of his other costs, and the net result is when he adds those costs associated with that function, to the costs he paid for the gas from the main transmission line, the net result must be such that he has an economically viable scheme or he would not go ahead with it, or it would not be economic -- if it were not economic, gas or any other commodity would then not be serviced to that community on that basis.

Now, that is not the only way that things can be done. That is the normal practice.

Q Now, forgive me for labouring it, Mr. Horte, but I have to go to Tuk to explain this to people and I think what I will get suggested to me is, why do we have to use the trunk pipeline at all then, why don't we just run our own line from the Parson's Lake gas field or the Taglu gas field into Tuk and then we don't

have to pay for all those guys in Chicago.

A That may well be, I can't say that it is. It may be feasible, if there are facilities closer to Tuktoyaktuk, gas facilities, than our main transmission line that could provide gas that met quality specifications, etc., so that it could be consumed, then I would think that would be the thing to do.

Q And would that be something that Arctic Gas would be prepared to consider doing in order to supply gas to communities which are an economically feasible distance, as you call it, from those gas fields?

A Well, I don't know whose responsibility that would be at that point. If you were taking gas from someone else's facility, whether you know, this is a role that we should play or not is a good question. I suppose if it were a condition to a certificate, we would have to look at it.

Q All right but --

A But it would be rather unnormal, abnormal, I think, to be providing a service that wasn't associated with your own direct system.

MR. BAYLY: Mr. Commissioner, I've come to a point where I'll be moving on to a slightly different subject, and I would suggest this would be an appropriate time for a break, if you wish.

THE COMMISSIONER: All right. We'll break for a few minutes.

(PROCEEDINGS ADJOURNED FOR FEW MINUTES)

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. SCOTT: Mr. Commissioner, on page 2005 of the transcript, the index which leads us to that page has been proved out, but on the page Mr. Anthony says, that he will defer his questioning with respect to the events of that meeting to the Horte panel, he assuming that there will be somebody on the Horte panel who will be competent to answer it.

Mr. Genest follows by, I think, not accepting that statement,and then there is an adjournment and you will recall that following the adjournment, which I think was overnight, we were able to produce the minutes that Mr. Anthony was seeking, and which led to his question. So the result is that it is threefold: First of all, the index is vindicated, secondly, Mr. Genest is right, that there was no undertaking given; and thirdly, Mr. Bayly is therefore on his own.

MR. GENEST: I think I've resolved the question with Mr. Bayly. We've checked in the break through the organization, the only meetings we know of that were specifically concerned with route selection were the two meetings, the minutes of which have already been filed, plus the meetings that Mr. Williams testified to on a technical basis where they sat down with the Department of Public Works officials to avoid crossing the highway and so on, in minute road selection, and we have no knowledge of any other meetings.

MR. BAYLY: Mr. Commissioner, I'm satisfied with that. It appears to be one of those rare occasions when everybody is right.

Q Mr. Horte, just before we leave the question of route selection -- and I'm referring to the statement that you had made in your examination in chief, and I won't refer to it by quoting it, but basically it is that there is at some point an appropriate distance from a settlement to

place a pipeline to avoid m aximizing the impact and at the same time providing the option to give the advantages which we went over before the coffee break. The question I want to ask you, sir, about this is, was any consideration given to whether there were greater impacts in going very close to a community than going through the hinterland of the community that might be more valuable to the people who live in the community, when the route was selected?

A I would say that in those minutes of that meeting that finally took place where all the environmental considerations and the sociological considerations that had been considered at least to that point were brought to bear on that routing, the minutes, I think, were April 27th of --

Q That was 1973.

A -- 1973, that have been referred to in this hearing. That was sort of an overall look at the total thing then, having regard to all these considerations, and the various trade-offs that would have to be made in connection with the selection of the route, so at that time these factors were considered at least in the selection of the route itself. I can't get specific about particular distances etc., I'm just not able to.

Q Well, I take it from your answers to Mr. Bell's question that one of the things that did not go into the selection of the prime route was the asking of the people who actually lived in the prime route areas where they would locate the

facility if they had the decision to either make or influence.

A Again I don't know how directly I can say this, that in connection with that meeting that I referred to, there were people that attended that meeting who had been in communication with certain of the communities and were reflecting their very action as a result of those visits, etc. in the communities, and that input at least to the extent that it was available, was listened to and considered at that time. Of course the big danger with that sort of thing, as I mentioned earlier this morning, is that you know, how solid is that? These attitudes, etc., those feelings can change for a very good reason, and so it is a factor, I think, that has to continually be assessed. In other words, you may not have the best handle on it at a particular moment in time.

Q Well, one of the witnesses we have had -- and I'm afraid I can't quote from him, when we were asking about route selection, one of the earlier panels said, "Well, in the south we have to cross people's farmland, but we try not to go through their vegetable patch if there is a possibility of not doing that. In other words, we try not to go through areas that are near and dear to them."

If I were to suggest that it may be that Arctic Gas did not recognize areas that were near and dear to the people because they did not consult them in making their prime route selection,

would you agree that that is a possibility?

A I would agree that that is a possibility.

Q And what we traditionally recognize perhaps as less than useful bush, somebody else might think of as a very important area.

A That's certainly possible. Of course, as I mentioned earlier, that is, while a major consideration, there are other considerations as well.

Q Yes.

A We have to go into that overall judgment.

Q I realize that. I think you would agree with me, though, that what you said earlier this morning, too, is that one of the benefits you expect to derive as Arctic Gas from these hearings, is a kind of education into those attitudes which you have said are not as quantifiable as some of the other things that you have considered, so that the route can perhaps, where in your terms practical, be adapted to accommodate as many of these as is reasonable.

A Yes sir, we're certainly prepared to learn.

Q All right, and in that sense your route proposal is flexible enough to perhaps accommodate some of these things which will perhaps come up in either community hearings or in the fourth phase of the formal hearings.

A I expect and hope so,

yes sir.

Q Now, I'd like to discuss with you the cross-delta proposal which I realize is still in the alternate stage, but which it appears at least on the technical side is a very attractive alternative. Would you agree with that?

A Yes.

Q Now applying the principles of how you select a route, I assume that the first interest in cross-delta arose because it was probably more direct than going down the east side of the Richardson Mountains, that is the west side of the delta. Would that be fair to say?

A That it first arose because of that reason?

Q Because it was more direct than --

A Yes, I think that is the reason it was ultimately considered, yes.

Q And I don't remember the figures, but I think Mr. Genest suggested when he announced this as a possibility that it would save many millions of dollars to use this route rather than the prime route as it is now proposed.

A That is our estimate on a straight dollar basis, yes.

Q Now, what you are giving, I gather then, to your environmentalists and the people who do your social and economic impact studies, is this alternate telling them that it is very attractive in some ways and asking them if it is as attractive in terms of their disciplines, is that correct?

A That is correct.

Q Now, at what point in your opinion would you consider any possible requests by them to abandon cross delta because of environmental problems. Is there a level of environmental problem that you would not want to confront while you are discussing and trying to choose between the prime route and that alternate?

A That again is a very difficult thing to quantify and I just simply couldn't attempt that. We will have to look at the assessments as they are made and just exercise the best judgment that we possibly can with respect to it ourselves and of course it will also be subjected to the judgments of many others including yourself before these proceedings are completed and ultimately somebody, regardless of our judgment will make a decision.

Q Now, they won't have to make that decision if you don't apply for it, so that you have to , I assume, make the initial decision

as to whether environmentally you want to apply for it before we even get a chance to consider it, is that fair to say?

A Well, as you know, in looking at alternates, etc., having exposed the alternates and looked at them, if the jurisdictions involved decided that -- let me for a moment make some assumptions, that in our judgment we still stuck with the prime route, from an application standpoint, and the jurisdictional people involved decided that there were a preference for the, in their minds, in their judgment, for the cross delta route, then I am sure under those circumstances that we would be prepared to amend and switch the application to make that possible.

Q Now, going to perhaps a less practical example, a route for which you have not applied either as a prime route or as considered as an alternative, or even discussed is not likely to be suggested to you, I would assume.

A Well, I don't know, I guess, certainly as I understand it, any participant in these public hearings certainly has the opportunity to suggest, as I understand it, any routing that they might suggest and the reasons for suggesting it and why they think it would be better than what we have selected and if so and if they demonstrated that to be so to the satisfaction of some board, why that might well become the route if it were a practical route, but --

Q Well, you would agree with me, I think that there are constraints on that too, because the applicant, I would assume, could say, "I don't want to build it there, it is too difficult or it is too costly."

A Certainly I think the applicant always has the, you know, if it just felt that it wasn't an attractive project or was impractical from the standpoint of a sound method of getting gas to the market that it could just withdraw, say it wasn't prepared to build that.

Q Now, the reason I bring this up is because the one example we were given by Mr. Dau of a consideration on ecological grounds which arose in consulations in which he was involved, and I believe it goes back to the April '73 time period, was a discussion of whether the pipeline should cross the Peel Plateau, which as I understand it, is an important trapping area and at that time the interests, according to Mr. Dau, were balanced and the balance came out in favour of crossing the Peel Plateau rather than going around it. So, I am assuming that at some point or other the applicant must make that decision on its own, prior to presenting it to this hearing or to any other hearing.

A Yes, we have had to make many of those judgments.

Q And what sort of -- you

haven't been able to tell me, and I can understand that until you get your studies done, at what point you would consider not applying for cross-delta as opposed to the prime route, what sort of things do you look for in deciding this, how do you quantify it, because it appears from the evidence of Mr. Dau and others that you do balance these interests even though there may be great difficulties in doing so.

A It is nothing that is, you know, really, I don't believe I could attempt to explain it; it is just really in the final analysis, having listened to all the factors, you exercise judgment and really you can't add up all the -- you can't really define something such as environment in terms of dollars and cents, economic terms, you really just have to exercise good judgment and of course that is what this Inquiry and others that we are going to be heard before -- are going to have to do, they are going to have to -- having listened to all the evidence -- exercise that judgment as well. We have put forth our best judgment.

Q All right, Mr. HOrte, let's go back, though to this Peel plateau example, because I think that is where you and I have not come to the same conclusion in that it appears to me that there has been in that decision a measuring up of environmental considerations against dollars and cents and perhaps against technical

considerations in which the environmental considerations have been turned down in favour of crossing the Peel plateau, would that be a fair statement?

A I would certainly have to have more information on that particular judgment, that judgment call, so --

Q All right, I am wondering --

A -- I am sorry I am very not responsive to your question.

Q All right, I am wondering, Mr. Commissioner, it appears as though we will have Mr. Horte back after a break of a period of time and that might be the sort of thing that Arctic Gas would be willing to undertake to find out so we could perhaps have laid open to the Inquiry just how one of these decisions is made prior to its becoming part of an application.

A You know, I really question how much help that would be. We presented all the evidence we can in these various areas. We have stated why we have done certain things. Then somebody else has to look at the same information, decide whether in fact balancing all the things, that our judgment was sound, or that something else should be done, and it is no easy task; but to try and set down for somebody in specifics that you can add up this and add up that and then you can, you know, just weigh the one against the other and quantify it on some basis, I don't think is possible

YOu have to look at all of the factors and exercise what is reasonable judgment and you know, it depends on the degree, if the impacts are minor, even though one is slightly more than the other, is that, you know, is that a deciding factor or is it a major environmental thing? These are the kind of ingredients that go into that overall judgment, but they are very, very hard to quantify.

Q Mr. Commissioner, I can appreciate the difficulty Mr. Horte is having, and that Arctic Gas has had. But the difficulty that I am having is that when confronted with a decision made by Arctic Gas to make an application and to say, cross something like the Peel Plateau, we do not have the advantage of knowing that there was -- what the other alternative was in terms of, say the reasons for not choosing it, unless we do get some idea of how that decision was made. If it was purely a question of shorter pipe, I think we should know that. If it's a question of it being very bad to build a pipeline off the Peel Plateau for some physical or environmental reason; if that were considered I think we should know that. It's because the applicant is the one that has done all the testing that we must look to it to see why it made decisions of choice which may have been to balance against environmental considerations because of something else. And in decisions like that Peel River Plateau crossing, we just don't know, and I submit that we need that sort of input in order to evaluate Arctic Gas' application. Otherwise the other participants are put in the position of perhaps having to go out and do independent testing of the areas that they feel are ecologically sensitive and the areas adjacent to them to see if a facility would be better located somewhere else.

I realize we'll be getting into some of this perhaps in the alternate routing section in Whitehorse, but I would submit that this

would be a thing that you should rule on, sir, rather than something between me and Mr. Horte.

THE COMMISSIONER: Yes. You're saying that you want to know whether consideration was given to any other routing in this specific instance, what the alternate or alternates were, what factors were weighed, and the reasons why those in favor of the route adopted were regarded as outweighing the others. That's where we're at, is it?

MR. BAYLY: Yes, sir.

THE COMMISSIONER: Well, that sounds reasonable, Mr. Genest. What do you say?

MR. GENEST: Well, sir, I think on a specific basis like Mr. Bayly has put it, I have less difficulty than with the general concept, the difficulties of which were explained by Mr. Horte. I think perhaps we can be of assistance on -- on matters like the Peel Plateau.

MR. BAYLY: Well, I would suggest that I'd be content with that, Mr. Commissioner. I picked that because it's a specific example that was discussed in the examination of Mr. Dau, and I would like that, quite frankly, before we have to evaluate the cross-delta as opposed to the prime route because it's only on that kind of basis that we can, I submit, discuss the factors that went into Arctic Gas's choice.

THE COMMISSIONER: Yes.

MR. SCOTT: Mr. Commissioner, may I intervene in this debate, because one of the

requests that I was going to make was that at a convenient time Mr. Horte should let us know the material that his people had before him, for example -- and this was the example we had in mind -- when they selected the route adjacent to Fort Good Hope, that was our example, just again so that we could see the inputs that were -- and I think it's the same request that Mr. Bayly has to make-- the inputs that were available at the time the decision was made and could help therefore in judging the manner in which the tradeoffs which led to the ultimate selection were approached and achieved. The importance of that, it seems to me, is not simply to provide examples to help Mr. Bayly and myself, but because notwithstanding Mr. Horte's generous response today, and throughout, which has been to listen to everything that is said and to see if the plan could be evaluated, in my respectful submission that is not the responsibility of the applicant under the guidelines, and perhaps this was what our friend, Mr. Templeton, now returned to Winnipeg, meant when he was talking about burden of proof. The guidelines, you see, on page 3, require that the applicant must document the research conducted and submit a comprehensive report, assessing the expected affects of the project upon the environment. The amplification of this guideline presented below registers some current environmental concerns of government, it is intended to indicate to the potential applicant some of the major topics that should be included in such an environmental assessment, and it goes on, and it seems to me

respectfully that if all the participants raised no objection, and Commission counsel asked no questions, it would still be the responsibility of the applicant on environmental and socio-economic matters to illustrate to the Inquiry the principles upon which it has proceeded in, for example, selecting its route, and the modes by which it has selected this route or this place to cross a river rather than that one.

Now obviously one doesn't want too much detail, but respectfully in terms of the socio-economic considerations and the way they have inter-played, we have received next to nothing. I think in other words Mr. Bayly's request and mine will be helpful but there is a general question dealing with the burden on the applicant that doesn't have to be approached today, perhaps, it being Friday, but which will have to be approached before we get very much further in this case.

THE COMMISSIONER: Yes. What was the page of the pipeline guidelines that you were reading from?

MR. SCOTT: It's the second 1972 guidelines which quotes from the 1970 guidelines, beginning at page 13, insofar as it deals with environmental guidelines, and I think as I read them, and I think we can all agree now that they are not the easiest document in the world to read, but they do seem to impose on the applicant the obligation to present a rationalization in some detail of its choice of other matters, but also of routes in terms of

environmental and socio-economic considerations, and while it iscomforting and a valuable assurance to have Mr. Horte say, "Well, we've done the best we can and we're here to listen and we'll respond in due course, or will respond if it's practical," I wonder if that really is what the guidelines require of the applicant.

THE COMMISSIONER: Well, what passage on page 13?

MR. SCOTT: Really the whole paragraph, beginning at the top.

THE COMMISSIONER: Oh, I see. Well, what is the section of the route that you're interested in, can you describe it more specifically than Fort Good Hope, or is that good enough?

MR. SCOTT: Well, my concern is not environmental, because as I understood the evidence of Mr. Dau, he and his group made the environmental determinations and recommended them to Arctic Gas, and as I read that evidence, he says that Arctic Gas accepted them all without exception. So I take it that I'm satisfied so far as the environmental considerations are concerned, that we have spoken to the man who made the decisions. But when it comes to socio-economic, we really have only the most general statement of what the principles were, and I thought it might be helpful if we could take a specific section of the route at some point in time, it doesn't have to be today, and decide what input there was at that place, as an example, and Fort Good Hope struck me as an interesting place and there, for

example, the pipeline passes through the Territorial limits of the community, that is it's relatively close --

THE COMMISSIONER: That is the city limits.

MR. SCOTT: The city limits, yes, and it's therefore an interesting example. That presumably would be a factor that the applicant had to weigh, it would be interesting to know how --

THE COMMISSIONER: Oh, I see, yes, yes. Well, couldn't you take those two specific stretches, one in an environmental sense, I take it that that was Mr. Bayly's concern, and one in a social and economic sense, and tell us whether any alternate route or routes were considered in each instance, and if they were not considered at all, I suppose that's the end of the matter; if they were, why were they rejected in favor of the route adopted?

MR. GENEST: Well, Mr. Commissioner, my respectful submission is that this eloquent philosophical dissertation by Mr. Scott imposed on an agreement between Mr. Bayly and I is entirely premature. We have phasing in these hearings. We are going to have a panel of environmental advisors to whom questions about standards and the degree of judgment, the degree of acceptability in their opinion can be addressed, they can be cross-examined to death on it. We have panels of socio-economic witnesses who are coming in later phases to whom questions in their field of a similar kind can be addressed, and

it's only then, in my respectful submission, that the kind of judgment that Mr. Scott says that the guidelines require you to make, require him to argue about, can be made. I should say that I don't agree with his wide interpretation of the guidelines, I think that we have done what they require us to do, and we will do what they require us to do as these hearings progress. We're only in the first phase. We will provide, in the language of the guideline:

> "all background data on which our environmental assessment is based,"

we will provide our environmental assessments, our witnesses can be cross-examined as to the standards they used in coming to that assessment. There will be opportunity for those who challenge it to present evidence that it was improperly reached, or they failed to take account of a number of matters. I do submit, sir, that this exercise Mr. Scott has indulged in is premature at this stage.

Now, as far as the Peel Plateau is concerned, Mr. Bayly and I are agreed, I think I can get him that information.

MR. BAYLY: I was wondering about that. I thought maybe the agreement was about to be withdrawn.

MR. SCOTT: Well, Mr. Commissioner, I raise it now rather than raising it tomorrow because the same issue is at stake, and can I make one effort to make myself clear? What I am concerned with at this stage of the hearing is not socio-economic

effects on people and so on which will be Phase 4. I am concerned with route selection, which is clearly a matter within Phase 1. Now when we dealt with the environmental advisors, in the first panel Mr. Dau said, "We were charged with getting the input in environmental matters, and where there were conflicts, making a determination and recommending it to Arctic Gas," and you will recall that both Mr. Bayly and myself and the other counsel probed at length as to how those trade-offs were made in environmental matters.

Whether one is satisfied or not with his answers, we have Mr. Dau's account of how he, the decider, attempted to make the trade-offs. Now, it seems to me, if I recall his evidence, he made it clear that he did not perform the same function with respect to socio-economic input. He told us that those consultants were hired by Arctic Gas and any changes that were made as a result of their advice were not made by him.

Now, I understood that Mr. Horte, representing Arcitc Gas, would be able to say, "yes, my company made the trade-offs in socio-economic routing questions and here is how we did it. We established eight policies of general application and we weighed them this way, if we could, or that way if we could." Now, all I am asking is that we should take an example, if we can and see how that works to judge, if in fact, what input there was and how it was measured and how the ultimate determination was made by the applicant.

THE COMMISSIONER: Well, it is a matter that I must say at the moment I am inclined to Mr. Scott's side of the argument, but we are getting near the time of adjournment and it might be possible for Mr. Genest and you to sort this out over night, Mr. Scott.

MR. GENEST: It's going to cost me again.

THE COMMISSIONER: It is not

going to happen this afternoon anyway, so maybe you gentlemen wouldn't mind getting together and seeing if you can't reach common ground. I don't think it is that big of a -- well, maybe it is a big point.

Well, at any rate, Mr. Bayly, you and Mr. Genest are still getting along and where are you now?

MR. BAYLY: I am still on page one, Mr. Commissioner.

THE COMMIESIONER: All right.

MR. BAYLY: I am getting along. Mr. Commissioner, I am in your hands. I have quite a lot more, I am prepared to go on this afternoon. I am prepared to wait until tomorrow, whichever you wish.

THE COMMISSIONER: Well, maybe we should --

MR. BAYLY: We appear to have arrived at that stage that we arrive at at the end of the day in some ways.

THE COMMISSIONER: Yes, --you looked at your watch, Mr. Genest, does that mean that you think that --

MR. GENEST: No, actually, I was thinking that Mr. Horte looks to be in splendid shape and I think that he could take a little more. I do that without consultation.

THE COMMISSIONER: I am sure

he can --

MR. BAYLY: Perhaps we should look at you, sir.

THE COMMISSIONER: I know that you all think that this is the easiest job just sitting here listening and --

MR. GENEST: We don't, sir.

THE COMMISSIONER: I think that I have had enough. And in any event we will adjourn until nine tomorrow, but I have been asked by Diana Crosbie of the Inquiry staff to make an announcement. Miss Crosbie is head of the Inquiry film society, it was she, you will recollect, who brought you the story of the Canol pipeline last month, and in fifteen minutes she will be showing here in the Inquiry hearing room the film called "building in the north." It is the film that Dr. Legget, who gave evidence on the overview referred to and it related to construction in the north and problems encountered with permafrost so that is a convenient way with carrying on with our work in a less rigorous form and I think that will satisfy both Mr. Horte and you, Mr. Genest, so 9 o'clock in the morning.

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